Hindawi

Research Article

Mathematics Deep Learning Teaching Based on Analytic Hierarchy Process

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Deep learning is an important concept introduced into modern learning science. It is different from the surface learning of mechanically and passively acquiring knowledge and storing individual information but emphasizes learners' active and critical learning. It wants them to understand the full meaning of what they have learned. By establishing a link between existing knowledge and new knowledge, it transfers existing knowledge to a new environment, makes decisions, and solves problems. Deep learning plays an important role in students' learning. Deep learning ability is the key factor affecting the quality of learning and the development of students' academic ability. The quality of in-depth teaching is difficult to guarantee, which requires a complete, comprehensive, and evaluation system to evaluate it. This paper introduces the analytic hierarchy process to weight the indexes in mathematics deep learning and puts forward some suggestions on creating an environment for deep learning. The experimental results show that teachers' teaching accounts for the highest proportion of primary indicators, reaching 67%. Multimedia resources account for the highest proportion of secondary indicators, reaching 73.01%. This paper then puts forward some suggestions for indicators with large weights.

1. Introduction

A common problem with school curricula today is that they are not comprehensive and are still quite superficial. In class, the information received by students is often only superficial understanding, mechanically printed in their memory; they are only application, and the information they master is only superficial. Restricted by many factors such as examination, there are still many problems in classroom teaching. There are still a considerable number of teachers who take the "spoon feeding" and "indoctrination" teaching methods as the leading teaching methods, regard students as a container for receiving knowledge, and do not regard students as a complete "person." It lacks humanized education; of course, it cannot promote people's long-term and all-round development, and teaching is a lack of innovative consciousness.

Deep learning is more than just teaching superficial knowledge. Instead, it makes teaching adapt to students' cognitive styles and individual differences, which enables them to study deeply. Deep learning aims to greatly change students' learning process and results through teachers' deep learning. The goal of positive deep learning is to find ways to teach less and learn more. It makes the school happy and peaceful and reduces the unpleasant burden. The innovations of this paper are as follows: (1) this paper uses analytic hierarchy process to analyze the data, constructs the model of in-depth teaching quality evaluation system, and determines the weight of single ranking index of in-depth teaching quality evaluation. (2) On the basis of establishing the model of evaluation information collection and processing, this paper divides the evaluation information into indirect and direct evaluation information according to whether it can directly reflect the evaluation results.

2. Related Work

Relevant scientists have done the following research on deep learning teaching. Hossain D. proposed a method based on a deep belief neural network for target detection. A robot took

an object of the user's choice and placed it at the desired location. The three developed learning systems are easy to use for nonempirical experts and give different results in terms of time and accuracy to complete the task. The proposed method can simplify the use of a robot manipulator and help inexperienced users in various assembly tasks. It applies it to object detection and implements three intuitive schemes for learning robot manipulators [1]. Li discussed the characteristics of university music education in relation to other cultural subjects, the potential of multimedia technology in school music education, and the complementary role of music education. It proposed intelligent functions of deep learning algorithms to monitor the teaching and learning process of music and analyze its quality. He presented a multimedia teaching plan with theoretical guidelines and references for the application of multimedia technology in music education in Chinese high schools and universities [2]. Long and Zhao used particle swarm image recognition and deep learning technology to process intelligent classroom video, extract features for classroom tasks in real time, and send them to the teacher. To overcome the early convergence of the conventional optimization algorithm, it proposed an improved strategy for multiparticle swarm optimization algorithm. To improve the search efficiency of the PSO algorithm and solve the problem of early convergence of the algorithm, he combined useful features from other algorithms into the algorithm. This increases the particle diversity of the algorithm and improves the overall particle search performance. As a result, efficient feature extraction is achieved [3]. Considering the analytical hierarchical process, the participating researchers have conducted the following studies. Jagtap and Bewoor introduced an application of the analytical hierarchical process to the identification of key equipment in a thermal power plant. In this analysis, based on the analytical hierarchical process, four criteria are considered in the critical analysis, namely, the impact of the faulty equipment on power generation, environment and safety, the frequency of faults, and maintenance cost. The study considers the main equipment of thermal power plants, namely, steam turbine, generator, induction fan, forced draft fan, primary pressure fan, boiler feed pump, cooling water pump, condenser water pump, and HV motor for mills [4].

Student evaluation of teaching can improve the quality of higher education. Emmanuel proposed a holistic method for assessing higher education that combines a hierarchical analytic process and data-driven analysis. The hierarchical analytic process allows for varying the importance of different standards for teaching performance, while the data-driven analysis compares teachers' opinions about students and determines the degree of improvement for each teacher. He used data from Greek universities to illustrate the proposed method for evaluating teaching [5]. Timiryanova aimed to link the geographical level with the order of reproduction. He tried to decompose the observed changes in transportation volume with a hierarchical linear model according to the hierarchical structure of economic space. The results show that the analytic hierarchy process can be used to analyze the relationship between production,

distribution, and consumption. In the territory under consideration, transport volumes were mainly affected by domestic consumption, while the impact of wholesale trade was much smaller. The application of analytic hierarchy processes strengthens the analysis of reproduction [6]. Supplier selection has been addressed in the supply chain management literature. It is very important because it affects the composition, strategy, and performance of the whole supply chain. Santis R proposed a decision model based on the hierarchical analytical fuzzy process (AHP) and applied it to the practical case of selecting a maintenance supplier for a large Brazilian railroad company. He used eight criteria to evaluate five potential suppliers [7]. In the above study, deep learning and the application of the analytic hierarchy process are analyzed in detail. It is undeniable that these studies have contributed significantly to the development of these fields. We can learn a lot about methods and data analysis. However, the analytic hierarchy process has been relatively studied in the teaching of deep learning, and it is necessary to fully apply these techniques to research in this area.

3. Teaching Methods of Mathematics Deep Learning

3.1. Deep Learning Teaching. Deep learning is a form of learning based on understanding. Learners can critically absorb new knowledge and ideas, integrate new knowledge and ideas into existing cognitive structures, establish connections between multiple ideas, and transfer existing knowledge to new situations to make decisions and solve problems. Deep learning refers to the process of learning and the situation of learners' learning. The focus is on learners' deeper understanding of the basic concepts and principles of knowledge and their own joint construction of learning content and knowledge [8].

In deep learning, learners can connect new ideas and concepts with previous knowledge and explore basic principles and models. By actively evaluating new ideas and conclusions, they integrate learning into the relevant conceptual framework and understand the dialogue process of knowledge construction. It critically examines the logic of its claims and consciously reflects on its own learning and knowledge. Deep learning is a learning process, which selects challenging and stimulating topics under the guidance of competent teachers. Students can actively and wholeheartedly participate in it, experience the richness of the process, and acquire relevant development skills [9]. Deep learning not only focuses on the knowledge and skills eventually acquired by individuals but also focuses on understanding the nature of learning, unique interests, and valuable needs formed in the process. Deep learning is not passive learning but an intensive process and space of active exploration, active construction, and rational application under the guidance of teachers. The process of deep learning can also be said to be a deliberate learning process. It pays more attention to exploring the essence of learning, discovering the significance of students' learning, and cultivating students' habit of independent learning through active exploration [10].

In the classroom learning under traditional pedagogy, learners regard the course content as the content that has nothing to do with their existing knowledge and experience. Learners regard the course content as irrelevant knowledge fragments or modules. Learners cannot understand why and how to do it, just memorize facts and imitate operating procedures. Learners have great difficulties in understanding concepts different from the contents of this book. The learner always regards static knowledge as the authority. Learners cannot consciously reflect on their learning intentions and their own learning strategies.

It analyzes the key and difficult points in the theme of teaching and looks for teaching methods that are more conducive to students' cognition. Only when teachers are familiar with the key and difficult points in the teaching process can they have targeted teaching. At the same time, the key and difficult points of knowledge also run through the main line of the whole teaching process. It is also the direction for teachers and students to overcome together. Teachers should carry out corresponding situational teaching from students' existing cognitive structure and improve students' cognitive structure and learning transfer ability on the basis of students' familiarity. Its carefully designed key and difficult teaching process can effectively promote the construction of students' knowledge structure and form correct mathematical ideas and values. At the same time, it also increases students' desire to explore knowledge and expand their horizons.

The effectiveness of teaching depends not only on teachers' teaching methods but also on students' learning level. Teachers' teaching does not match students' learning. The teachers of intensive teaching are different from the students of intensive learning. Therefore, teaching should focus on students' learning and be based on observing and analyzing students' learning. Contemporary learning theory holds that students' learning is multidimensional and holistic, and the formation of knowledge and meaning, the development of skills, and the acquisition of emotional and behavioral values form a whole in deep learning [11]. At present, teacher-centered learning is contrary to the basic learning law that determines students' learning style. Chinese textbooks have been in the process of reform. The connection between disciplines and between grades is becoming more and more obvious. However, it cannot effectively understand the teaching materials and knowledge system. Teachers ignore the links between chapters and disciplines in the process of teaching. It is often a lesson, a topic, and a unit. This makes many students not aware of the connections between various knowledge points, and they are often unable to apply flexibly, change, and adapt, let alone learning transfer. The cohesion of teaching materials and teachers' own cultural cultivation and knowledge reserve have a great relationship with whether students can learn effectively [12].

Theme teaching is one of the effective teaching modes to promote students' in-depth learning. It can not only let teachers guide students around a certain knowledge theme, make students change and improve their cognitive structure, and improve their learning transfer ability. It can also integrate the three-dimensional goals of students' knowledge, skills, emotional attitudes, and values. At the same time, it can also enable students to actively participate in teaching, feel its rich process, and obtain corresponding development ability. It enables students to understand the essence of learning, unique high-level emotion, positive and optimistic attitude, and correct value orientation formed in this process [13]. As shown in Figure 1, it is the framework diagram of theme teaching research design.

The theme is the link between all things and one or more characteristics, such as the concept of integrity in the first section of the first chapter of middle school mathematics. Thematic teaching is a way of planning and teaching information in a specific context or in a common or similar learning style. Special subject teaching is to guide people to learn interdependent knowledge modules through various research and teaching methods. It is a way to change and strengthen people's cognitive structure. Topic teaching is actually a form of learning. Teachers guide students to find their own way of learning and thinking about a topic. Its purpose is not to acquire knowledge but to pay attention to imparting knowledge, improving skills, strengthening emotional experience, and cultivating correct values in the learning process. Figure 2 shows the schematic diagram of theme teaching design.

In terms of computer artificial intelligence, deep learning actually refers to algorithmic thinking. Its core is that the computer simulates the deep thinking of the human brain, so as to realize the complex operation of data [14]. In the field of artificial intelligence, computer processing information is a process of automatic coding and automatic decoding. It is a process from data extraction, abstract cognition to optimal selection. The human brain processes information layer by layer. Computer artificial intelligence simulates the cognitive structure of the human brain to process complex information. Artificial intelligence does not rely solely on data models. The process of artificial intelligence simulation from symbol reception, decoding, and connection establishment to optimal selection is also structured [15].

It is a great advantage for learners to use rich curriculum resources and Internet resources for learning. To show learners' learning process and meaning construction process, what is more effective is the amount of data downloaded by learners. The resources here include the resources of the course itself (usually provided by teachers) and Internet resources. The former includes the use of resources in the in-depth teaching platform (such as problem resources and e-library). We can determine the online learning time of learners by recording the time when they log in and log out of the system. It provides learners' learning range, learning progress, and other information through the browsing range and times of the course content page. It uses the browsing of problem resources and e-library materials to understand the depth and breadth of learners' learning. It uses learners' statements in the discussion area or chat room to collect learners' learning attitude, understanding of learning topics, problem solving, adjustment of learning strategies, and meaning construction.
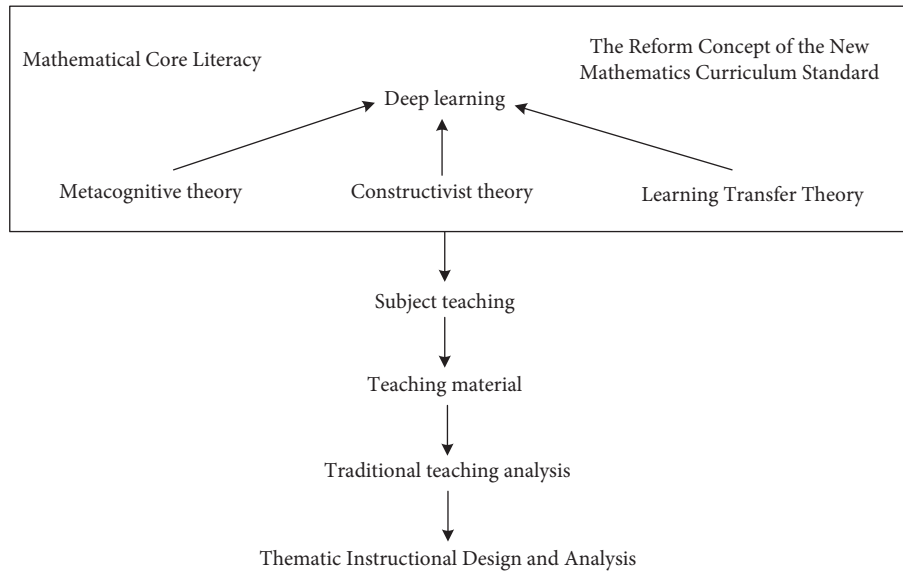
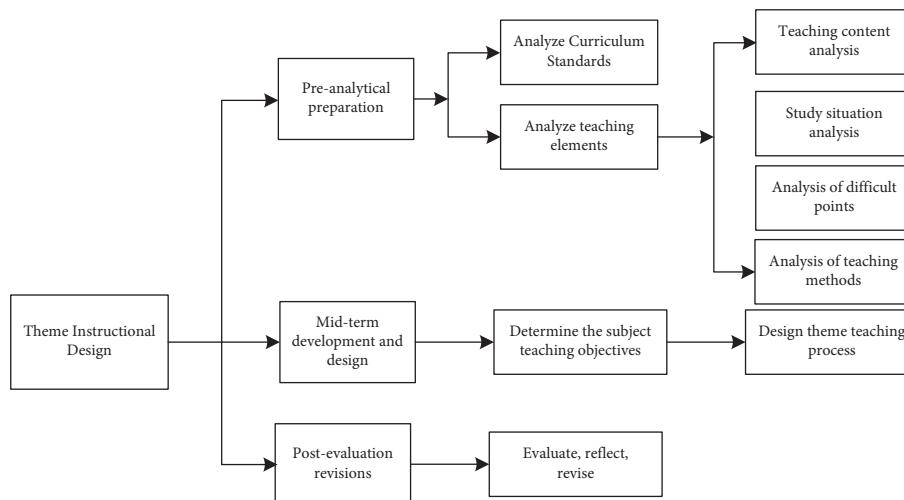FIGURE 1: Framework diagram of theme teaching research design.

FIGURE 2: Schematic diagram of theme teaching design.

The depth of teaching is the real meaning of teaching. It goes beyond superficial symbol communication and develops from superficial symbol teaching to the teaching with real logical significance. The depth of teaching does not mean deepening the teaching content or increasing the teaching difficulty. It is not to increase the difficulty of knowledge and infinitely expand the number of knowledge but to guide students to comprehensively deal with knowledge and information. It helps them deepen their mastery of knowledge and achieve real understanding. It is learning in context, meaningful learning, developmental learning, interactive learning, and the development of attitudes and emotional values in a special sense [16]. The depth of learning refers to the degree of explanation and development of students' knowledge. Deep learning does not rely on technology and procedures to guide the teaching process, and increasing students' knowledge is the only purpose of teaching, but focuses on the essence of teaching.

It pays attention to the teaching situation and process and the value and significance of teaching. It emphasizes that students learn to change from superficial symbolic knowledge to the symbol of knowledge, real thought, method system, general logical structure, and real in-depth understanding. The general logical structure and corresponding value and significance transform traditional symbolic learning into deep and meaningful learning in the general sense, making students' learning full of happiness, significance, and humanistic interest [17].

It forms a relationship of listening to each other attentively. They are good at appreciating each other's feelings, understanding each other's meaning, opening up, and accepting each other. If the atmosphere of listening to each other flows in the classroom, the knowledge and information expressed by teachers and students will have their own emotional factors and the temperature of their own lives. The teacher's classroom discourse is not just to convey

knowledge but a sense of skin-cutting flowing from the depths of his heart. What students say is not only the correct answer the teacher wants but the real idea in his heart. Such teaching provides students with the opportunity to give birth to wonderful ideas.

Deep learning does not mean a specific teaching method, tool, or strategy but a real teaching concept. The process of in-depth teaching is aimed at students' growth and development, developing their internal rich emotions, caring for the consistency of students' life development, and looking for guidance for the quality development of teaching in the future. Structuralists pay attention to the basic structure of the discipline, while teachers pay attention to students' understanding and mastery of the basic structure of the discipline. Constructivism emphasizes foundationalism, which means that concepts must be both broad and adaptive. On the other hand, structure refers to the relationship between the basic concepts, principles, and laws of various disciplines. In the context of a specific field, it refers to the concepts, principles, and legal system that are crucial to the field [18].

3.2. Analytic Hierarchy Process.

Analytic hierarchy process is mainly used in dealing with multiobjective factor optimization problems, resolving complex problems into several level problems, and making comparative judgment based on experience. By calculating the proportion of each level index to the total target weight, the greater the weight proportion, the best the scheme. It implements relevant strategies for the scheme according to the modeling results [19]. The steps of analytic hierarchy process are as follows: (1) It establishes a hierarchical index model. Through the combination of literature search and actual situation, the research problem of decision-making is divided into several levels, including general goal, subgoal of each level, evaluation criteria, and scheme level. (2) The construction of the judgment matrix is to find out the key factors in the same level of indicators according to experience, compare the two factors according to subjective opinions, and determine the weight of the upper level goal, so as to construct the judgment matrix. Through the comparison of quantitative figures, it transforms the research object from qualitative problems to quantitative problems, which can better describe the objective reality. It provides a mathematically accurate description for practice. (3) It solves the judgment matrix by calculating the maximum eigenvalue of the determinant of the judgment matrix. It calculates the corresponding feature vector according to the maximum feature root and uses normalization processing to obtain that each feature vector is the weight of each index, which determines the quality of the scheme according to the weight [20]. (4) The rationality test of its judgment matrix is a judgment matrix constructed according to subjective factors, which is the ranking result between indicators. These indexes are not completely transitive. The eigenvectors are calculated according to the matrix, and the weights represented by these eigenvectors may not be combined with reality. At this time, the weight needs to be tested at one time, and the pairwise comparison matrix is constantly modified according to the test until it passes the test. (5) The consistency test of overall objective ranking calculates the maximum eigenvalue of the matrix by constructing the pairwise comparison judgment matrix. It calculates the feature vector according to the feature root and obtains the weight of each index. It sorts the proportion of the total target weight according to the weight of each index to determine the importance of each factor. At this time, the results are not necessarily accurate, and a one-time inspection is still needed. If the inspection fails, it needs to be adjusted until the inspection passes.

Hierarchical single ranking refers to the relative weight of each factor of all judgment matrices according to its criteria. In essence, it is to calculate the weight vector. Each column of the consistency judgment matrix is normalized and calculated by using the principle to obtain the corresponding weight. It normalizes and calculates each column of the inconsistency judgment matrix to obtain the approximate corresponding weight.

$$\sigma_u = \frac{1}{b} \sum_{v=1}^{b} \frac{i_{uv}}{\sum_{k=1}^{b} i_{kv}},$$

$$U_I(m) = \exp\left[\frac{-(m-a)^2}{\omega^2}\right], \tag{1}$$

where b is the number of column vectors and σ_u is the arithmetic mean of column vectors.

$$CI = \frac{\phi_{\max} - b}{b - 1},$$

$$\overline{I}_u = \sqrt[b]{\prod_{v=1}^{b} i_{uv}} \tag{2}$$

where CI is the consistency indicators.

$$\sigma^{(k)} = \left(\sigma_1^{(k)}, \sigma_2^{(k)}, \dots \sigma_b^{(k)}\right)^T = v^{(k)} \sigma^{(k-1)},$$

$$\sigma_u^{(k)} = \sum_{v=1}^{a} \phi_{uv}^{(k)} \sigma_v^{(k-1)}, \tag{3}$$

where a is the number of elements and kk is the number of layers of element sorting.

$$CR = \frac{\sum_{v=1}^{b} \sigma_v CI_v}{\sum_{v=1}^{b} \sigma_v RI_v},$$

$$I_u = \frac{\overline{I}_u}{\sum_{u=1}^{b} \sqrt[b]{\prod_{v=1}^{b} i_{uv}}}, \tag{4}$$

where CI_v is the consistency of single sorting and $RI_v RI_v$ is the mean random consistency.

$$\phi_{\max} = \frac{1}{b} \sum_{u=1}^{b} \frac{i_{uv} I_u}{I_u},$$

$$C.I. = \frac{\phi_{\max} - b}{b - 1}, \tag{5}$$

where $\phi_{\max}$ is the maximum eigenvalue and b is the order.

$$D_k = \sum_{u=1}^{b} r_{ku}, \qquad (6)$$

where $D_k D_k$ is the sum of all times or times and bb is the total number of students.

$$\mathrm{avg}_k = \frac{D_k}{b}, \qquad (7)$$

where $\mathrm{avg}_k \mathrm{avg}_k$ is the average time or times in the index.

$$x_1 = \sum_{u=1}^{b} \left(I_u \times Pu\right), \qquad (8)$$

where x_1 is the ssessment of learning activities.

Analytic hierarchy process is a systematic and hierarchical analysis method, which combines the qualitative and quantitative analysis of nonqualitative events. It is mainly used for decision-making problems under uncertainty with only a few analysis criteria. In this method, a complex problem is decomposed into various factors, which are grouped in a dominant relationship to form an orderly level. The importance of each factor is determined by two comparisons, which then combines human factors to determine the order of possibilities. Analytic hierarchy process aims to simplify complex problems. It divides it into different levels by establishing an interactive level. Through detailed quantification and evaluation, it helps decision makers make appropriate decisions and reduce the risk of wrong decisions. It ensures the scientificity of qualitative analysis, the accuracy of quantitative analysis, and the consistency of the overall evaluation of qualitative and quantitative indicators. It is a simple, flexible, and practical multistandard decision-making method. Since its introduction, analytic hierarchy process has been widely used to solve the problems of various industries.

The basic principle of analytic hierarchy process is to decompose all levels of complex problems into orderly levels and connect them together. Elements at each level have roughly the same status. Each level has a specific relationship with its previous and subsequent levels, and an orderly hierarchical model is formed on the basis of mutual relationship. Hierarchical model usually consists of some key levels, such as goal level, standard level, and decision level. In a recursive hierarchical model, the importance of each level is quantified through the evaluation of some objective facts, that is, the level. Through two comparisons and quantification, the relative importance of each layer of facts is determined and an evaluation matrix is formed. Then, the relative importance weight of each index in the evaluation matrix is calculated by mathematical method. Finally, by combining the relative weights of the importance of each layer, it calculates the relative importance weights of the indicators of each layer in the recursive hierarchy model to calculate the weights of all indicators. Figure 3 shows the technical roadmap of analytic hierarchy process.

Analytic hierarchy process takes the research object as a system and makes decisions according to the thinking mode
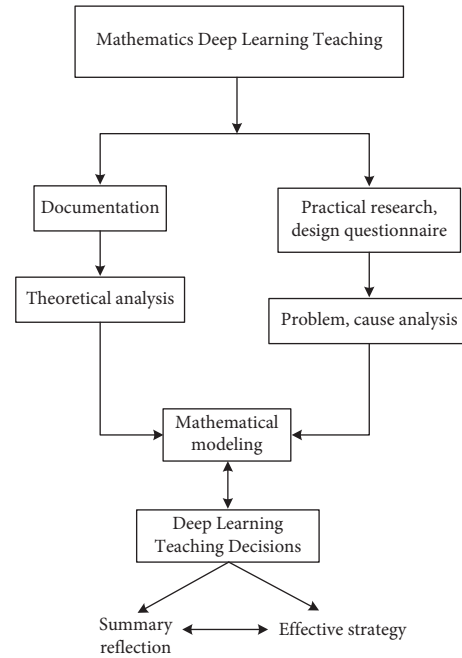

FIGURE 3: AHP technology roadmap.

of decomposition, comparative judgment, and synthesis. It has become an important tool of system analysis developed after mechanism analysis and statistical analysis. The idea of the system is not to cut off the influence of various factors on the results, and the weight setting of each layer in the analytic hierarchy process will directly or indirectly affect the results. Moreover, the degree of influence of each factor in each level on the results is quantified and very clear. This method can especially be used for the systematic evaluation of unstructured characteristics and the systematic evaluation of multiobjective, multicriteria, and multiperiod. The function of analytic hierarchy process is to select the best one from the alternatives. When applying the analytic hierarchy process, there may be a situation where our own creativity is not enough, resulting in the fact that although we choose the best of many schemes we think of, the effect is still not good enough for the enterprise. Then, it points out the shortcomings of the known scheme or even puts forward the improvement scheme; this analysis tool is more perfect. But obviously, analytic hierarchy process has not been able to do this.

Analytic hierarchy process regards a subject as a system and decomposes and compares the influence of various factors on the evaluation results of the whole system. The contribution of each level in the analytic hierarchy process has a direct or indirect impact on the final evaluation results, and the impact of factors at each level on the final evaluation results can be quantified in a very clear way. This method is very suitable for multiobjective, multicriteria, and multiphase systems. Hierarchical analysis is easy for decision makers to understand and use. The foundation and steps are very simple and easy to calculate, and the results are not complex. The evaluation of the relative importance of each level of reasoning is transformed into the analysis of the
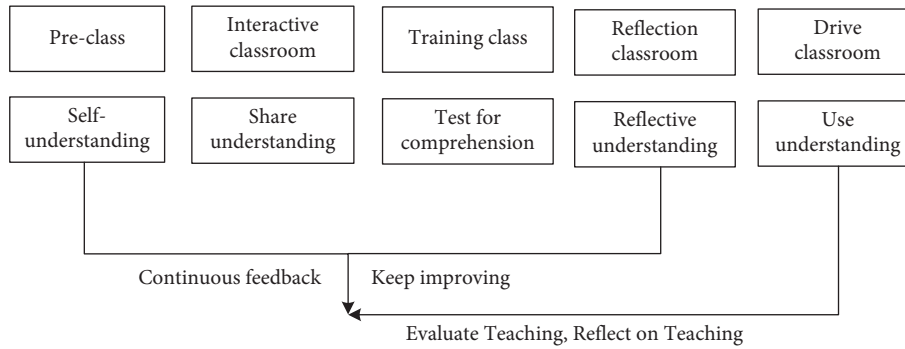
FIGURE 4: In-depth teaching classroom design process.

relative importance of the human decision maker, and the evaluation of the component of each level of reasoning is based on the calculation. Analytic hierarchy process is most suitable for the hierarchical system with interrelated evaluation indexes and decision-making problems whose target value is difficult to quantify. This paper uses the analytic hierarchy process, which is widely used in system evaluation, system design, and decision-making. It examines the evaluation standards of deep learning quality from three different perspectives and analyzes the quality of deep learning. It identifies five of the many factors that affect the quality of education: educational services, educational management, teachers, students' learning, and social reputation.

Analytic hierarchy process is mainly used in the fields of safety science and environmental science. In the aspect of safety production science and technology, the main applications include coal mine safety research, hazardous chemicals evaluation, oil depot safety evaluation, urban disaster emergency response capacity research, and traffic safety evaluation. The application in environmental protection research mainly includes water safety assessment, water quality indicators and environmental protection measures, eco-environmental quality assessment index system, and determination of pollution sources in aquatic wildlife reserves. In addition, analytic hierarchy process can be more used to guide and solve the problems encountered in personal life, such as professional choice, job choice, and house purchase choice. It can clarify the level of work ideas and thinking problems by establishing hierarchical structure and measurement indicators.

4. Teaching Experiment of Mathematics Deep Learning

In this paper, through the design of in-depth teaching program applied to the actual classroom, we can understand what problems exist in the application of in-depth teaching in the actual classroom. Figure 4 shows the classroom design process of in-depth teaching.

In order to better understand the concept of students' learning, we randomly select students for learning behavior survey, and let students answer questions from multiple perspectives, such as listening habits and attitudes,

questions, answering questions, group discussion, and so on. Tables 1 and 2 show the students' answers.

This problem needs to consider the factors affecting the teaching quality of deep learning. In this paper, the analytic hierarchy process is used to determine the subjective weight of each factor, and then the weighted sum is carried out, so as to construct the model of distance teaching quality evaluation system based on analytic hierarchy process. The model is divided into the following three layers. The top layer of distance learning quality evaluation based on analytic hierarchy process is the target layer; the middle layer corresponds to the primary index layer, and the bottom layer is the criterion layer, which corresponds to the secondary index layer. Figure 5 shows the quality evaluation of distance teaching based on analytic hierarchy process.

In practice, a consistency test is needed to judge whether the matrix meets the general consistency requirements. Only when the general consistency is satisfied can the logical rationality of the judgment matrix be confirmed, and then the results need to be continuously analyzed. As shown in Table 3, it is the average random consistency index.

According to the questionnaire survey, the proportion of indicators obtained through statistics is shown in Figure 6. As can be seen from the figure, teachers' teaching accounts for the highest proportion of primary indicators, reaching 67%. Multimedia resources account for the highest proportion of secondary indicators, reaching 73.01%.

To sum up, it determines the index weight of hierarchical single ranking of deep learning teaching quality evaluation based on analytic hierarchy process as shown in Figures 7 and 8.

In order of importance, teachers' teaching accounts for 40.89%, teaching management 21.96%, students' learning 21.96%, facilities and services 7.59%, and social reputation 7.59%.

Deep learning must consider creating an atmosphere of daily dialogue in the classroom, so as to truly connect the classroom with life and re-establish the classroom life situation. Teachers should treat students as friends and learning partners. Listening and responding are the proper performance in class. It conducts in-depth learning in a natural and cohesive dialogue environment, collects knowledge, and concentrates culture and spirit. The teachers are full of true feelings and guided by good manners.

TABLE 1: Questions in class and difficulties encountered in learning.

Take the initiative to ask the teacher	Discuss with classmates	Solve by looking up data	Nothing more
8%	36%	34%	22%
Actively raise your hand to speak	Selective question and answer	Only care about the part that interests you	Only care about the part that interests you
16%	44%	34%	6%

TABLE 2: Group discussions in classroom learning and what kind of lessons do you like.

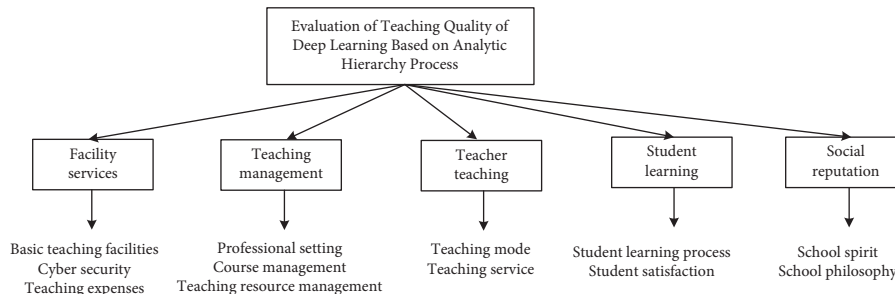| Often discussed	According to the actual situation, occasionally discuss	Little opportunity for discussion	Do not know what to discuss
12%	38%	32%	18%
The teacher explains directly	Teacher asks questions, students think	Group discussion	Carry out various forms of activities and small competitions
6%	30%	9%	55%

FIGURE 5: The quality evaluation of distance teaching based on analytic hierarchy process.

TABLE 3: Mean stochastic consistency indicator.

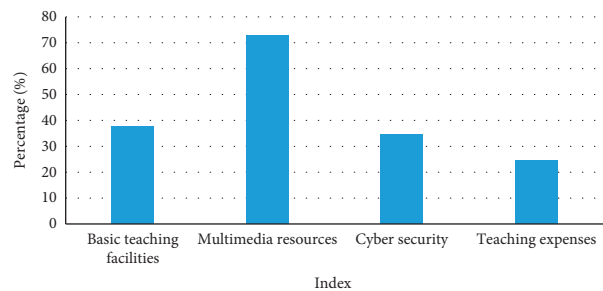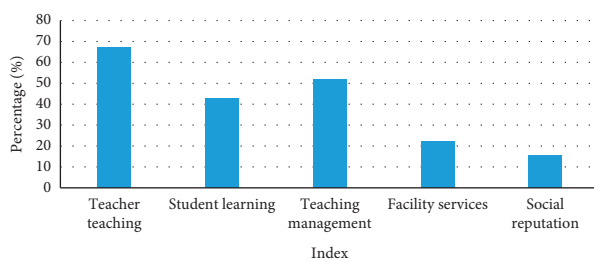| Matrix order	1	2	3	4	5
RL	0	0	0.52	0.88	1.12
Matrix order	6	7	8	9	10
RL	1.25	1.36	1.42	1.46	1.49

FIGURE 6: Percentage of indicators.

Teachers and students realize opposite wisdom, mutual arousal of emotions, mutual integration of souls, familiar language forms, grammar between people, and affectionate understanding, and learning becomes a seemingly simple and pleasant dialogue. To build a learning community, we should build a platform for communication. To establish a community, we should create more opportunities for mutual cooperation and learning. It has study report meeting, reading exchange meeting, online blog forum, community activities, and other projects, which are good communication platforms. In this process, teachers should play a guiding role as the chief in equality. It includes how to choose topics, find students' potential in the process of activities, give vivid guidance, guide the selection of materials and methods, reduce the blindness of learning, pay attention to emotional communication, timely coordinate and resolve contradictions, and promote the effective implementation of learning activities.
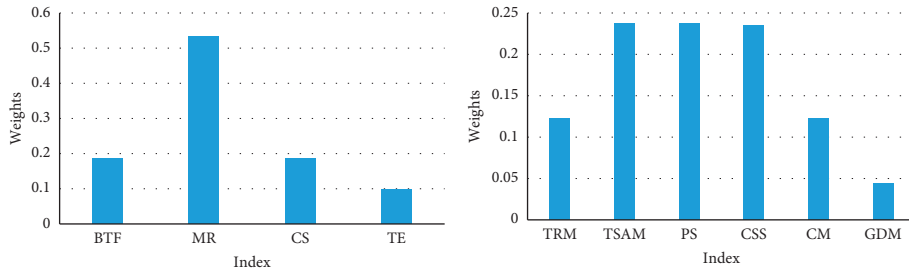
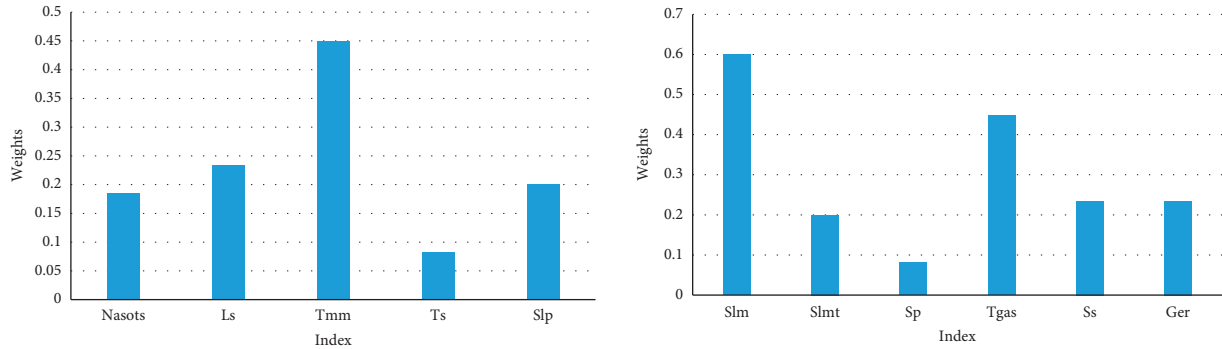FIGURE 7: Facility service and teaching management weight.

FIGURE 8: Teachers' teaching and teachers' teaching weights.

To build a learning community, we must first have a common vision of mutual recognition. A common vision is the development of desire and vision established by the community for teams and individuals based on the present and pointing to the future. It has a strong driving force. In the process of realizing the common vision, learners will inspire great strength to pursue learning goals and the meaning of life. It will integrate the personal vision into the common vision and make the personal vision in harmony with the common vision. It integrates individual wisdom into the collective, learns in communication, and communicates in learning. Through the impact of different thinking and wisdom, it forms collective wisdom and realizes in-depth learning in a democratic and harmonious atmosphere.

5. Conclusion

In the educational reform, different teaching methods have appeared, but these teaching methods have the same effect on students. Those teaching methods are similar, and there is no systematic teaching method to cultivate the educational objectives and abilities of all students. Deep learning is a model of science learning, which is different from the traditional classroom tolerance, strict attendance, and poor teaching methods. After the improvement of curriculum standards, teachers supervise in the classroom, and the student-centered classroom teaching method can be continued. This paper introduces the analytic hierarchy process, constructs the deep learning teaching quality evaluation system, and weights the indexes in the system. It puts forward corresponding suggestions for different weights. According to the results of mathematical modeling by analytic hierarchy process, whether it is feasible in practice is demonstrated, and the theoretical model is constantly revised according to practical problems to guide teaching practice.

Data Availability

No data were used to support this study.

Conflicts of Interest

The author declares that there are no conflicts of interest regarding the publication of this article.

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