

Retraction

Retracted: The Modeling of Comprehensive Evaluation System of College Teachers' Professional Quality Based on Deep Learning

Advances in Multimedia

Received 15 August 2023; Accepted 15 August 2023; Published 16 August 2023

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

- (1) Discrepancies in scope
- (2) Discrepancies in the description of the research reported
- (3) Discrepancies between the availability of data and the research described
- (4) Inappropriate citations
- (5) Incoherent, meaningless and/or irrelevant content included in the article
- (6) Peer-review manipulation

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

- [1] X. Yang, "The Modeling of Comprehensive Evaluation System of College Teachers' Professional Quality Based on Deep Learning," *Advances in Multimedia*, vol. 2022, Article ID 8383699, 11 pages, 2022.

Research Article

The Modeling of Comprehensive Evaluation System of College Teachers' Professional Quality Based on Deep Learning

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Received 27 July 2022; Revised 29 August 2022; Accepted 5 September 2022; Published 16 September 2022

Academic Editor: Tao Zhou

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As a significant part of national education, the quality and ability of college teachers determine the level and height of the connotation growth of higher education in China. With the advent of the 21st century, society has entered a new stage of rapid development of knowledge economy. Promoting the coordinated and sustainable development of human and natural society has become an important topic of social research. The great rejuvenation of the nation and the progress of society all show the demand for high-quality talents. As an important base for cultivating high-quality talents, colleges and universities must shoulder the mission entrusted by the state. The cultivation of high-quality talents requires not only scientific educational guiding ideology but also a set of student comprehensive quality evaluation index system to evaluate students' comprehensive quality. Colleges and universities must reform the comprehensive evaluation system of teachers' quality, clarify the objectives of the comprehensive evaluation of teachers' quality, reasonably set the evaluation content, use the correct evaluation means, mobilize the enthusiasm of teachers, promote the construction of teachers' team, and improve the competitiveness of colleges and universities according to the laws of education and teaching and the professional characteristics of teachers. This paper adopts the method of deep learning to evaluate the comprehensive quality of teachers, and the corresponding complete evaluation system of teachers' comprehensive quality is gradually formed. Judging from the actual situation of the reasonable evaluation of college teachers, the evaluation of teachers' psychological quality, teaching curriculum quality, and ideological and moral quality with the help of this system can provide a good guarantee for the continuous optimization and improvement of teachers. At the same time, it can play an important and positive role in the continuous improvement of teachers and the innovation and development of classroom teaching. Based on this, it is necessary to discuss the construction of the comprehensive quality evaluation system of college teachers.

1. Introduction

As for the concept of teachers' professional quality, many scholars have defined it from different perspectives. For example, Abdallah and Musah [1] believe that teachers' professional quality refers to the synthesis of knowledge, skills, moral concepts, behavior, and personality formed and growing in the process of teachers' professional development to ensure the completion of education and teaching tasks. This paper adopts the definition of teachers' professional quality in the "dictionary of education." Teachers' professional quality is the psychological and behavioral quality that teachers should have to complete education and teaching tasks. In the new era, college teachers bear the great responsibility

of cultivating the backbone of the motherland. The level of college teachers' professional quality is the key to measure whether teachers are competent or not and whether teachers can maintain their white image and personal dignity. At the same time, it also determines whether teachers can well undertake the task of cultivating social talents and promoting social development and progress.

On September 7, 2020, China held a national conference on teacher development. Chen Baosheng, Minister of Education, stressed that the education system should take high-quality development as the main line and start a new journey of building a team of high-quality, professional, and innovative teachers in an all-round way [2]. The professional quality of teachers has always been the focus of education. At

present, China's vocational education is on the path of historical change, which can be said to be in the "important strategic opportunity period." It is necessary to gradually change from the original "quantitative demand" to "quality development" steadily, and the improvement of teachers' professional quality will become the main theme of the "high-quality development" of vocational education teachers in the new era. High-quality development refers to the process of taking the cultivation of high-quality, professional and innovative teachers as the goal and the cooperation between multiple subjects of teacher education to promote the orderly operation of teacher education and continuously improve the quality of teacher education.

Building a mature and high-level faculty in colleges and universities is the basis for running China's higher education well. In order to establish a team of higher education teachers in line with China's educational characteristics, the state attaches great importance to and actively promotes the construction of higher education teachers and has issued various policies and documents to vigorously improve the ability of teachers in colleges and universities. The guiding opinions on promoting the reform of talent evaluation mechanism by classification point out that we should implement classified evaluation and improve team evaluation methods. Figure 1 shows the distribution of professional titles of college teachers in China. It can be seen from the figure that most college teachers are below the deputy senior professional titles. Then, how to improve teachers' ability according to the actual situation of teachers has also become a research hotspot in the academic community [3]. However, the current researchers mainly focus on the macro strategy and path, and there is little research on the effectiveness of specific measures, professional impact, and practical effectiveness. In practice, there are differences between teachers. Therefore, schools need to pay attention to differences, respect differences, and pay attention to differences in the training and improvement of teachers' ability. This study takes the professional teachers of the intelligent control technology professional group as an example, combined with this specific and representative new engineering education group in colleges and universities, fully considering the differences between professional teachers, and based on the in-depth learning method, teachers are divided into professional development stages according to their teaching age, age, and professional ability, so as to improve their ability at different levels, in order to explore the strategies and paths to improve the quality and ability of teachers in colleges and universities, realize the effect of layered measures on the improvement of teachers' ability, and provide theoretical basis and practical reference for the growth of teachers and the improvement of teachers' ability.

The transformation of teacher education system has led to a rethink of teacher training [4]. With the gradual transfer of the training of normal teachers from secondary normal schools to colleges and universities, the normal education system is also transitioning from a three-level system to a two-level system. Therefore, many scholars think and question whether the existing normal education system pays too much attention to "academic" and ignores "normal"

nature and begin to reexplore the general education model in the previous secondary normal education. It can also be seen from Figure 2 that the number of studies on the professional quality of university teachers has increased year by year.

The evaluation of teachers' comprehensive quality in universities is a complex systematic process, and there are often many indicators and factors that need to be considered. The first-class index system in the comprehensive quality evaluation index of higher teachers includes teacher morality and professional ethics, professional quality and ability, education and teaching quality and ability, professional development, and lifelong education, of which the index weights are 0.2, 0.3, 0.3, and 0.2, respectively. The indicators and factors also have mutual influence and different levels of relations, including juxtaposition, causality, and subordination. At the same time, the impact of indicators and factors on the evaluation results is often different; that is, there are primary and secondary, which is reflected in the weight of each indicator. In addition, the evaluation of teachers' comprehensive quality has a feature: the fuzziness of the evaluation scale, such as excellent, good, medium, poor, and inferior, is a typical fuzzy concept; there is no clear extension, and there is no absolute clear boundary between how to distinguish the level of teaching and scientific research, which basically belongs to the problem of fuzziness. Due to such complexity, it is difficult to obtain ideal evaluation results with only a single evaluation model.

It can be seen that it is necessary to quantify the professional quality of college teachers and conduct in-depth research on the comprehensive evaluation system model of college teachers' professional quality based on the deep learning theory. The structure of the rest of this paper is shown as follows. The second part reviews the relevant work on college teachers' professional quality and in-depth learning. The third part introduces the evaluation methods and models applied in this paper. The modeling principles, promotion strategies, and system functions of the comprehensive evaluation system of college teachers' professional quality are described in the fourth part, and the fifth part summarizes the important results of this paper.

2. Related Work

As of December 2020, although there are abundant researches on the connotation and structure of teachers' professional quality, domestic scholars have not reached a consensus on this. At present, the concepts of "teachers' professional quality" and "teachers' quality" are still confused. The former emphasizes the particularity and professionalism of the teaching profession. The latter emphasizes comprehensiveness and ideality. Although the two are not contradictory, they cannot be used equally. In terms of conceptual scope, the latter includes the former, and the former is an important part of the latter. Cavlazoglu and Stuessy [5] believe that teachers' professional quality refers to the comprehensive characteristics of knowledge, skills, morality, ideas, behavior, and personality formed and continuously increased in the process of teachers' development from

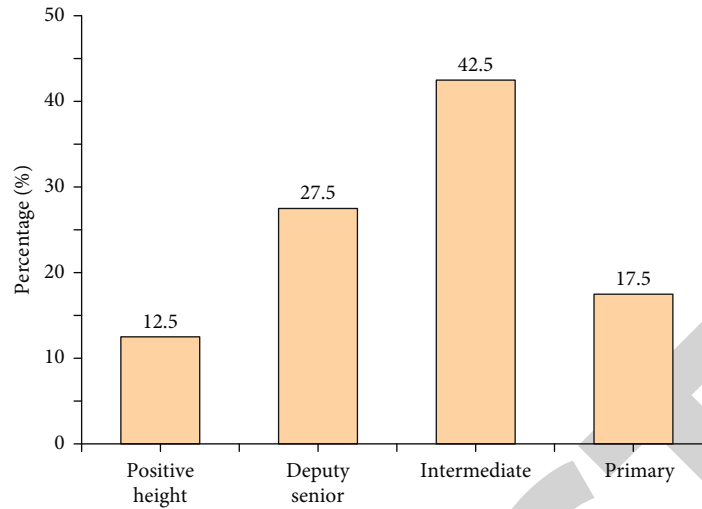


FIGURE 1: Distribution map of university teachers' professional titles.

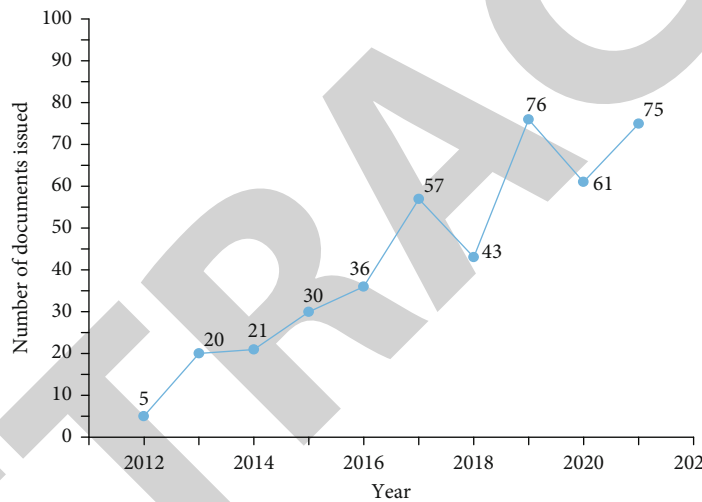


FIGURE 2: Chronological distribution of research literature on the professional quality of college teachers.

profession to specialization, which ensure the excellent completion of education and teaching tasks. Chen Z and Chen Q [6] pointed out that teachers' professional quality is a specialized and irreplaceable psychological quality obtained and gradually developed by teachers in systematic teacher education and long-term educational practice, which is reflected in educational activities and directly affects the educational process. The former believes that teachers' professional quality includes knowledge, skills, ideas, and so on, while the latter regards it as a kind of psychological quality. This represents two major points of view of existing research. This study tends to the former. The author selects the more representative research, analyzes its similarities and differences, and hopes to provide ideas for subsequent research.

The research on the professional quality structure of primary and secondary school teachers or all teachers has been about 25 years, and the research results are relatively rich. The composition data of college teachers' professional qual-

ity structure is described in Figure 3. From the perspective of research objects, the above representative studies are mainly aimed at all teachers or primary and secondary school teachers. In contrast to other studies, some scholars also study the professional qualities of teachers of English, science, sports, history, mental health education, music, mathematics, history, information technology, and other disciplines in primary and secondary schools, as well as college English, sports, tourism management, mental health education, ideological and political, business English, and other professional teachers, such as Childs et al. [7], Edwards et al. [8], and Dong [9]. From the perspective of research, it is mainly from the perspective of pedagogy, and Keating et al. [10] cut into the research of teachers' professional quality from the perspective of inclusive education concept and human resource management concept. From the perspective of research content, it mainly focuses on the specific content that an excellent teacher should have professional quality. Most studies have emphasized the two elements of

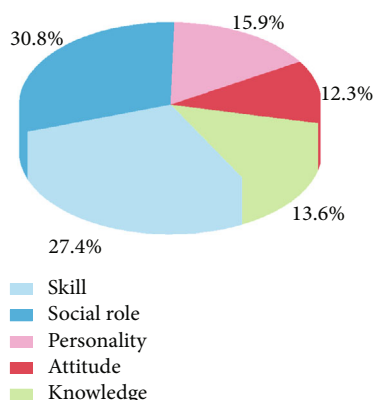


FIGURE 3: Schematic diagram of composition of professional quality structure of college teachers.

“knowledge” and “ability/skill.” The evaluation standard of professional knowledge is to have profound professional knowledge, including professional basic knowledge, professional subject knowledge, professional frontier knowledge, and systematic educational theoretical knowledge, and have a reasonable knowledge structure, update knowledge frequently, and form a knowledge level with personality characteristics.

On the whole, the average number of papers published from 2000 to 2009 was 1.9, and the average number of papers published from 2010 to 2020 was 4.36. It can be considered that relevant research has been increasing in recent years. Goode et al. [11] analyzed the professional quality of higher vocational teachers into three dimensions: “professional quality,” “professional quality,” and “modern quality,” including the progressiveness of professional ideas, the rationality of professional knowledge, the professionalism of professional skills, and the sustainability of professional development. This study emphasizes the “sustainability of professional development” of teachers, which can be considered to confirm the dynamics of teachers’ professional quality. In addition, the “progressiveness of professional ideas” indicates that higher vocational teachers should keep pace with the times, carefully study relevant policies and guidelines, and optimize their professional ideas. Lei [12] proposed the three-dimensional structure of teachers’ professional quality in higher vocational colleges: professional knowledge (foundation), professional ability (core), and professional ethics (guarantee). This research is developed from the professional quality of teachers in the early three-dimensional structure. Jingyao [13] took the “double qualified” teachers in higher vocational colleges as the research object and built a theoretical model of teachers’ professional quality including five dimensions of morality, philosophy, knowledge, ability, and service on the basis of various educational laws and regulations and government policies. Neville et al. [14] both established the logical order of quality from the philosophical basis of structure theory and took the competency model as a reference and divided

the professional quality of vocational education teachers into four circles [15]. At the same time, this study affirms the dynamic nature of teachers’ professional quality, but the author believes that teachers’ professional quality is a combination of dynamic and static, and the model of teachers’ professional quality cannot be simply separated into dynamic model and static model. The above circle division of higher vocational teachers’ professional quality provides a reference for the subsequent classification of this study. From the perspective of research methods, most studies use theoretical thinking research methods when building teachers’ professional quality, which is lack of certain scientificity. From the perspective of research object, most studies take the overall higher vocational teachers as the research object, but there are also scholars studying a professional teacher in higher vocational colleges.

Sun et al. [16] pointed out that the current vocational education teacher professional quality evaluation system ignores the professional characteristics of teachers, and it reconstructs the vocational education teacher professional quality evaluation paradigm from the research perspective of the work process systematic curriculum development paradigm. Under the guidance of this paradigm, school managers can establish a professional quality evaluation system suitable for teachers of all majors, which is suitable for computer evaluation, and manual calculation is time-consuming and labor-consuming. Huweifang drew up the evaluation index system by using factor analysis method. Secondly, the index was optimized by investigation and statistics method, and then, the weight of each index was established by using rank sum operation method. Finally, the evaluation index system of higher vocational education teachers’ professional quality was established. The hard indicators in this system are easy to measure and evaluate, while the soft indicators similar to teaching efficacy still lack effective measurement tools. To sum up, both scholars have adopted the research method of combining empirical research and qualitative research to build a higher vocational education teacher professional quality evaluation system, which is scientific and reasonable. How to systematically improve the professional quality of higher vocational education teachers is a weak research field at present. Wuquanquan started from the perspective of the new requirements of vocational education teaching reform and believed that the improvement of teachers’ professional quality should be promoted by improving the professional theory and vocational education theory knowledge level of vocational education teachers, developing teachers’ professional practical ability and consolidating work process knowledge, and promoting teachers’ participation in teaching reform. Liu et al. [17], from the perspective of comparative education research, compared the focus, experience, and innovative measures of cultivating higher vocational teachers’ professional quality in Canada, Germany, and China and proposed that China’s innovative measures to strengthen teachers’ professional quality include project guidance, enterprise training, competition strengthening, and overseas research. Figure 4 depicts the recognition of college teachers for career stability. Development and cultivation cannot be given or spread to. Who wants

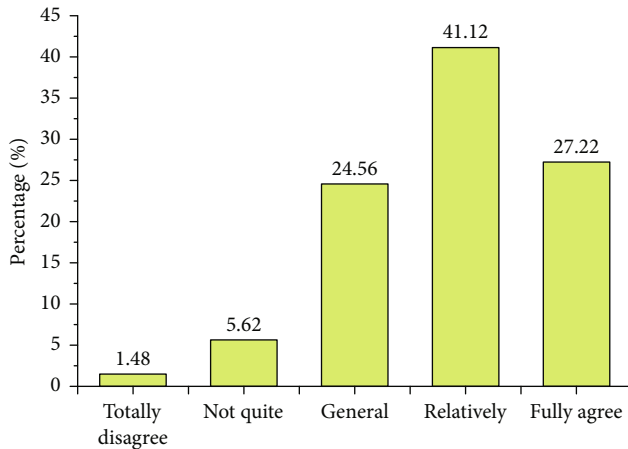


FIGURE 4: A relatively stable proportion of college teachers.

to enjoy development and cultivation must obtain it through internal activities and efforts. As far as teachers are concerned, their internal activities and efforts are teachers' main learning and practice. Learning is the "preservative" for teachers' professional growth. Only by constantly learning and fully "charging," "energy storage," "oxygen absorption," and "calcium supplementation" can teachers continue to receive the "supply" from the source.

The study of foreign teachers' professional quality began in 1896. Later, Crook Shank used comprehensive research methods to divide the quality of excellent teachers into two dimensions: classroom organization and management and classroom education, including 14 and 25 specific instructions, respectively. However, there are few foreign literature studies on "teachers' professional quality," mainly from the perspectives of teachers' professionalization, teachers' professional development, teachers' professional standards, teachers' ability, and so on. Teachers' professional standards are standards that promote teachers' professional development and can show the requirements of national education administrative departments for teachers' professional quality. The following are the professional standards for teachers in the United States, Britain, Germany, and Australia.

In 2003, the Australian Ministry of Education issued professional standards for teachers across the country. The contents of teachers' professional development include professional knowledge, professional practice ability, professional quality, and professional relationship coordination ability. In 2011, the Australian National Professional Standards for Teachers (NPST) was officially promulgated. Its horizontal content standards fall into three areas, professional knowledge, professional practice, and professional participation, and there are 2-3 specific standards under each area. Its vertical dimension emphasizes the development stage of teachers. Of course, the national professional standards for teachers are applicable to vocational education teachers. In 2004, the German federal government issued the "teacher education standard: the perspective of educational science," as shown in Figure 5. This standard is the ability that all teachers in different stages, majors, and levels must have. Therefore, this standard is also of great significance to voca-

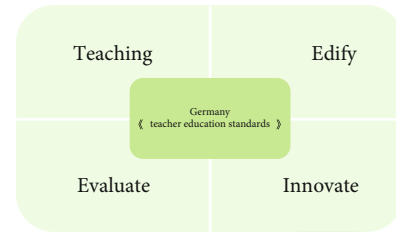


FIGURE 5: Framework of German teacher education standards.

tional education teachers. The standard sets the four ability areas of teaching, education, evaluation, and innovation as the first level standard. Taking the teaching field as an example, teachers should not only be good at teaching but also understand students' learning mentality, mechanism, methods, etc., to help students master knowledge and skills faster. At the same time, as a teacher, we should constantly improve ourselves and improve our ability.

The professional standards for teachers and educational trainers issued by the British government in April 2014, which defines the professional qualities that teachers should have from three dimensions: teaching concept, teaching knowledge, and teaching skills. This standard applies to all teachers. It can be seen that the professional standards defined by the British government mainly focus on teachers' own ideas, knowledge, and skills. Taking the "teaching view" of British teachers' professional standards as an example, it emphasizes that teachers' educational objects are the main concerns, such as respecting the diversity of learners' cultures. Students and learners establish a positive cooperative relationship, etc. This is a point worth pondering for domestic teachers. We should fully affirm the diversity of learners' cultures.

In recent years, with the deepening of the demand for intelligent applications, many problems with high-dimensional variables, strong nonlinearity and obvious uncertainties, randomness, and other influencing factors continue to appear, such as robot task dynamic planning in complex environments [18], driverless dynamic environment target recognition, power consumption behavior identification, and load forecasting in smart grids. To solve these problems, the traditional methods based on mechanism driven are inevitably restricted, and the intelligent methods based on data driven are increasingly concerned.

As an important branch of artificial intelligence, machine learning is essentially a neural network that can simulate human brain for analysis and learning and has been widely used in recent years. Figure 6 shows the network structure of the machine learning multifunction module. In recent years, with the wide application of machine learning methods in the fields of science and engineering, many researchers use data-driven methods to solve geological problems, such as convolutional neural network. The concept of "deep learning" was proposed by Hinton of the University of Toronto in 2006 [19]; the schematic diagram of the mainstream architecture is shown in Figure 7, which provides the possibility to solve the optimization problems related to deep network structure. The 2D encoder decoder

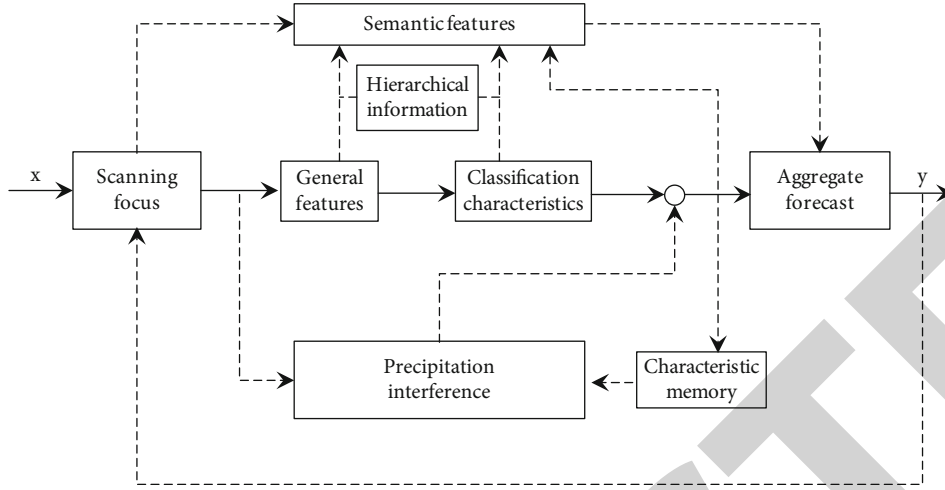


FIGURE 6: Network structure diagram of deep learning multifunction module.

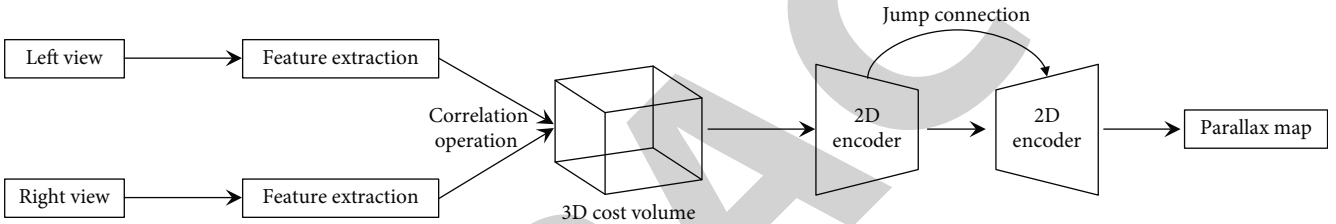


FIGURE 7: Schematic diagram of deep learning encoder architecture.

is composed of a series of stacked 2D CNN with jump connection to add residual information and improve the parallax prediction effect. The key point of the 3D regularization module is to splice the extracted left and right image features along the parallax dimension to obtain a 4D cost volume and then use 3D CNN to process the 4D cost volume, making full use of the information of the parallax dimension. Deep learning can also be divided into supervised learning and unsupervised learning.

3. Research Methods and Models

The general idea is to combine the analytic hierarchy process, through information collection, analysis, and multiple rounds of expert consultation to determine the index set of college teachers' comprehensive quality evaluation, that is, the factor set of the evaluation object.

$$U = \{u_1, u_2, \dots, u_n\}. \quad (1)$$

Because the comprehensive quality evaluation of college teachers is a complex system process, there are many index factors to be considered, and the hierarchical relationship is complex, so it is necessary to use the analytic hierarchy process to analyze the problems in depth, carefully analyze their mutual relations and hierarchical relationships, decompose the complex process into various constituent factors, and group these factors according to the dominant relationship, so as to form an orderly hierarchical structure. The idea

of the system is not to cut off the influence of various factors on the result, and the weight setting of each layer in the analytic hierarchy process will finally directly or indirectly affect the result, and the influence degree of each factor in each layer on the result is quantified, which is very clear and definite. This method can especially be used for the systematic evaluation of unstructured characteristics and the systematic evaluation of multiobjective, multicriteria, multiperiod, etc.

In view of the index system, integrating the experts' judgment on the relative importance of each evaluation index factor, the analytic hierarchy process is used to construct a comparative judgment matrix, and the weight judgment matrix of each expert is obtained [20]. Cluster analysis is used to analyze the differences of expert judgments, and the expert opinions that deviate far from most expert judgments are eliminated, and finally, the weight matrix on the index set u is formed:

$$W = (w_1, w_2, \dots, w_n). \quad (2)$$

And there are

$$\sum_{i=1}^n w_i = 1, (0 \leq w_i \leq 1). \quad (3)$$

There are m experts to participate in the weight judgment, and the cluster analysis method is used to analyze the differences of expert judgments. The process is as

follows: the judgment matrix of the relative importance of the 1st expert is B_1 . According to the root or sum method of analytic hierarchy process, B_1 calculates the weight judgment matrix D_1 of the 1st expert; the weight sample matrix is constructed from the weight judgment matrix D_1 of each expert.

$$D = \begin{bmatrix} d_{11} & d_{12} & \cdots & d_{1n} \\ d_{21} & d_{22} & \cdots & d_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ d_{m1} & d_{m2} & \cdots & d_{mn} \end{bmatrix}. \quad (4)$$

To standardize D , we use the mean normalization method to divide the elements in the original data matrix by the average value of the column, that is, the elements of the standardized matrix.

$$d'_{ij} = \frac{d_{ij}}{\bar{d}_j}, \quad (5)$$

$$\bar{d}_j = \frac{\sum_{i=1}^m d_{ij}}{m}.$$

Thus, a standard weight sample matrix is formed:

$$D' = \begin{bmatrix} d'_{11} & d'_{12} & \cdots & d'_{1n} \\ d'_{21} & d'_{22} & \cdots & d'_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ d'_{m1} & d'_{m2} & \cdots & d'_{mn} \end{bmatrix}. \quad (6)$$

Calculate the weight similarity coefficient matrix according to the Euclidean distance method.

$$R = \begin{bmatrix} r_{11} & r_{12} & \cdots & r_{1n} \\ r_{21} & r_{22} & \cdots & r_{2n} \\ \vdots & \vdots & \ddots & \vdots \\ r_{m1} & r_{m2} & \cdots & r_{mn} \end{bmatrix}. \quad (7)$$

Inside,

$$r_{ij} = 1 - \sqrt{\frac{1}{n} \sum_{k=1}^n (d'_{ik} - d'_{jk})^2}. \quad (8)$$

Calculate the degree of divorce between each expert opinion and most expert opinions.

$$f_i = \frac{\max_{1 \leq i \leq m} (s_i) - s_i}{\max_{1 \leq i \leq m} (s_i)}. \quad (9)$$

It refers to the closeness between the i th expert opinion and the majority expert opinion. The greater f_i , the greater

divorce. Set the threshold f_0 , eliminate the expert weight judgment opinions with the degree of divergence greater than f_0 , and average the remaining expert weight judgments to obtain the final index set weight matrix.

Comprehensive evaluation is to make a reasonable overall judgment on the things affected by various factors. The evaluation of teachers' comprehensive quality is a complex evaluation process with multiple factors and indicators, which cannot be simply distinguished between good and bad. Fuzzy logic works by using fuzzy sets. It is a method to accurately solve imprecise and incomplete information. Its biggest feature is that it can naturally deal with the initiative and fuzziness of human thinking. The evaluation of teachers' comprehensive quality involves fuzzy factors, and it is a feasible way to evaluate with fuzzy mathematics. At the same time, considering that there are differences in the understanding of the indicators among the members of the evaluation team and different members may have different scoring values for the same indicator, the grey correlation analysis method is introduced to count the expert scores and establish a fuzzy comprehensive evaluation matrix.

BP network is a widely used artificial neural network model, which continuously adjusts the weights of each neuron through information forward propagation and error back propagation and repeatedly trains until the network output error is reduced to an acceptable range. BP network model can simulate any nonlinear input-output relationship. This model has the disadvantages of low learning efficiency, slow convergence speed, and possible local extreme points. Therefore, LM algorithm is introduced to optimize it.

Let W_k and W_{k+1} represent the network weight vector of the k th and $k+1$ training; then, the weight adjustment amount ΔW_k can be expressed as

$$\Delta w = w_{k+1} - w_k. \quad (10)$$

According to Gauss Newton method,

$$\Delta w_k = -[J^T(w_k)J(w_k)]^{-1}J(w_k)e(w_k), \quad (11)$$

where $e(w_k)$ represents the weight error vector and $J(w_k)$ represents the Jacobian matrix of the error differential to the weight. LM algorithm introduces the adjustable parameter u on this basis, and the weight adjustment rule can be expressed as

$$\Delta w_k = -[J^T(w_k)J(w_k) + uI]^{-1}J(w_k)e(w_k). \quad (12)$$

In the training process, if the output error can be reduced by updating the weight, u needs to be reduced; otherwise, u needs to be increased. When u is large, $J^T(w_k)J(w_k)$ term can be ignored, and the weight adjustment rule is similar to the gradient descent method at this time. When u decreases to 0, the weight adjustment rule is similar to Gauss-Newton method. Through parameter u , the weight vector can be adjusted adaptively, which has both the local convergence of Gauss-Newton method and the global convergence of gradient descent method. Therefore, the

convergence speed and learning efficiency have been greatly improved.

4. Results and Discussion

4.1. Modeling Principles of Comprehensive Evaluation System for Professional Quality of College Teachers. The key to the construction of the comprehensive quality evaluation system of university teachers is to clarify the indicators. Any indicator system should be established on the basis of science, and at the same time, the particularity and content of each indicator need to be guaranteed. Based on this, in the process of constructing the evaluation system, we need to give good protection to the completeness indicators, and at the same time, we should also consider the independence of indicators. In the construction of the comprehensive quality evaluation system of college teachers, the determination of indicators needs to be based on the characteristics of college teachers' professional activities, strictly follow the mutual adaptive ability and professional activity principles, and based on the frequency and difficulty of professional activities and ability requirements, and based on the complexity of some necessary abilities in the process of completing activities, so as to ensure the good formation of the ability standard framework [21]. The construction of a scientific evaluation system for the comprehensive quality of college teachers can better reflect fairness and correspondingly can fully and comprehensively reflect the comprehensive quality of teachers.

The modern educational thought of people-oriented provides some inspiration for the construction of the comprehensive quality evaluation system of college teachers. From a certain point of view, the process of one's self-realization is education. In the case of using a unified model for individual development, it is lack of scientific rationality to evaluate individual education, teaching situation, and results. At the same time, it is difficult to fully and accurately reflect the actual situation of individuals. For teachers, everyone's specialization level is different, and there are certain differences in teachers' personal qualities. Therefore, when using the unified model, it will have a certain impact on the consistent evaluation of teachers' qualities. Based on this, in the process of carrying out the comprehensive evaluation of the quality of college teachers, it is not only necessary to consider the final results and then clarify whether teachers meet the basic requirements of the state for college teachers but also should comprehensively grasp and understand the extent of individual progress. On this basis, we can fully reflect the people-oriented orientation of college education evaluation and further ensure the humanization and scientificity of the comprehensive quality evaluation of college teachers.

Feedback on teaching information is one of the important functions of educational evaluation. Through educational evaluation, we can effectively regulate the teaching process and promote students' learning. Only with the help of scientific evaluation can we ensure that educational evaluation is more consistent with educational objectives and then provide effective help for students' personalized devel-

opment. In order to ensure that the above objectives can be well realized, in the process of educational evaluation, we should transition the previous single and conclusive evaluation of knowledge and skills to the combination of summative and procedural evaluation. In this process, we should also desalinate the evaluation screening and identification functions as much as possible to ensure that the evaluation diagnosis, promotion, and motivation are given full play. Only in this way can we ensure the comprehensive embodiment of the effectiveness of evaluation. Based on this, educational evaluation should ensure that it has the diversified characteristics of subjects and methods. In the process of evaluating teachers' comprehensive quality, we should fully combine good and qualitative and then promote the full mobilization of teachers' self-education initiative with the help of evaluation, so as to ensure that the role of evaluation in promoting education can be brought into full play.

From the perspective of the composition of college teachers' professional activities, it includes various activities and links. This structure mainly has two forms, namely, horizontal and vertical. From the analysis of the horizontal structure of professional activities, the overall task of the final completion of activities through a number of specific tasks is the horizontal structure, which is fully reflected in the following activities, such as teaching tasks, training tasks, and ideological and moral education. From the analysis of the professional activities of the vertical structure, after several activity links, the final completion of the specific task of the activity is the vertical structure. The vertical structure can be fully reflected in the following aspects, such as the need to ensure the improvement of teaching quality in teachers' teaching tasks and the need for teachers to deal with several basic links such as lesson preparation and performance evaluation. Only through the two forms of activities of vertical structure and horizontal structure can we effectively organize the teaching integrating class, training, and guidance and ensure that the teacher workflow that can circulate can be well formed. At the same time, there are also some links in this process to recognize and master the contents of teacher education and scientific research. Through the connection, mutual penetration, common promotion, and interaction between different activities, it can ensure that the basic fields and modes of college teachers' activities can be gradually and soundly formed.

4.2. Professional Quality Improvement Strategy. The system level strategy mainly takes the national or local government as the main body and formulates a series of policies and regulations from a macro perspective, so as to promote the professional development of teachers' quality from the external influence. It mainly includes clarifying welfare security standards, improving teacher management system, and refining training standards. Some studies have pointed out that we should thoroughly implement the teacher salary system to make the salary of rural teachers equal to that of civil servants. In strict accordance with the local per capita income level and consumption level, nonestablished rural teachers will be given subsidies, and the minimum standard of subsidies for basic living security will be specifically defined. For

the optimization of teacher management system, we should start from the professional access of teachers. Improve the teacher qualification certificate system, set up relevant institutions to conduct special evaluation and verification of teacher qualifications, establish a strict examination system for in-service teachers, and use the examination to determine the appointment and professional title evaluation of teachers. For teacher training, we should pay attention to the integration of preservice training and postservice training. Regular or regular training of in-service teachers in theory and practice will convey the importance of lifelong improvement of teachers' professional quality in the training process. In addition, we should realize the integration of teacher education resources in all stages and parts and realize the integration between colleges and universities, teacher training schools, and rural primary schools, so as to realize the combination of theoretical orientation and practical orientation.

As an intermediate link in the implementation of policies from top to bottom, Teachers should give full play to their professionalism. It is very necessary to reduce the workload of teachers, improve the teacher evaluation system, and establish a good school culture and teacher culture. Figure 8 shows the percentage of courses taught by university teachers. It can be seen from the figure that most teachers teach more than three courses. In view of the heavy workload of teachers, some studies have pointed out that we can start from standardizing the number of teachers. The number of courses undertaken by teachers should not exceed 3, so as to solve the burden of teachers from the root of teaching tasks. Teachers should also avoid the simple patchwork of courses when undertaking courses, so as to reduce the professional burden of teachers and indirectly solve the phenomenon of "what teachers teach is not their major." In terms of the improvement of teacher evaluation system, most studies are based on the new curriculum reform. Some scholars believe that the evaluation of teachers should not only examine teachers' teaching ability but also pay attention to the encouragement of teachers and should evaluate teachers and professional titles correctly, reasonably, and comprehensively from multiple angles. The school cultural atmosphere and the cultural tendency of teachers' group are very easy to affect teachers' professional identity and teaching enthusiasm. Some scholars pointed out that the school management culture of democratic participation makes it easier for leaders and teachers to form a relationship of trust and cooperation. In the atmosphere of democratic culture, it can not only improve the work efficiency of schools but also stimulate the enthusiasm of teachers. The upsurge of teachers' enthusiasm will directly reduce teachers' job burnout, which is conducive to the improvement of teachers' awareness of self-development.

The strategies at the teacher level mainly include improving the awareness of reflection and deepening professional understanding and understanding. All external theories and policy support are suggestions or promotion for the development of teachers' professional quality. Only teachers' conscious reflection can be combined with favorable external conditions for internal and external optimiza-

tion, so as to deepen the subconsciousness of self-improvement and realize the self-improvement of professional quality structure. Some scholars pointed out that teachers should improve their awareness of reflection. First, they should read a large number of monographs on educational theory, so as to enrich their theoretical knowledge and consolidate their educational and teaching foundation; second, actively seek cooperation between teachers, find their own advantages and disadvantages from cooperation, and clarify their own targeted development goals; the third is to transform the problems of educational practice into topics and explore and study them in combination with the corresponding theories. Through the combination of research theory and educational practice, we can constantly broaden our understanding of education at different levels and from different angles. The depth of teachers' understanding of their own profession is the main factor affecting teachers' professional identity. Some scholars pointed out that teachers need to have the educational concept of keeping pace with the times, clarify their own professional attributes, so as to establish their own professional teaching concept. In order to most likely mobilize the enthusiasm of learning, when assigning tasks, we should do different things according to different levels, so that learning at different levels can get different development and improvement. Let students have something to do. After completing the most basic tasks assigned by teachers, encourage them to work towards the "target" of the "level."

4.3. Functions of Comprehensive Evaluation System. Evaluation-oriented function refers to the function of evaluation itself to guide the evaluation object to move in a better direction, which is determined by the directionality of evaluation criteria. For the guiding function of university teacher evaluation, it refers to the use of predetermined goals in the index system to guide college students to carry out all-round learning, so that when college students face the society in the future, they will have their own employment goals. Through the weight analysis of various indicators, the timely evaluation of college teachers is made, which helps college teachers to correct their own shortcomings and promote the continuous development of college teachers' qualities.

The diagnostic function of evaluation is carried out at any time, which is accompanied by the whole process of teaching management. He can diagnose the excellent performance of the evaluated person in daily work or study, as well as the existing loopholes or defects. The advantages and disadvantages will be reflected in time, so that the inspected person can correct the mistakes in time. Use appropriate and understandable forms to make cumulative records of your usual learning situation, and sort these records into learning folders. This can not only be used as an evaluation of my learning but also help you understand the reality, shortcomings, tendencies, habits of learning, and the learning needs of the next step. The diagnostic function of college teachers' ability and quality evaluation is to make a continuous judgment on college teachers in time. Diagnose and analyze the deficiencies and defects of college teachers in the usual teaching process, so that college teachers can correct them in time.

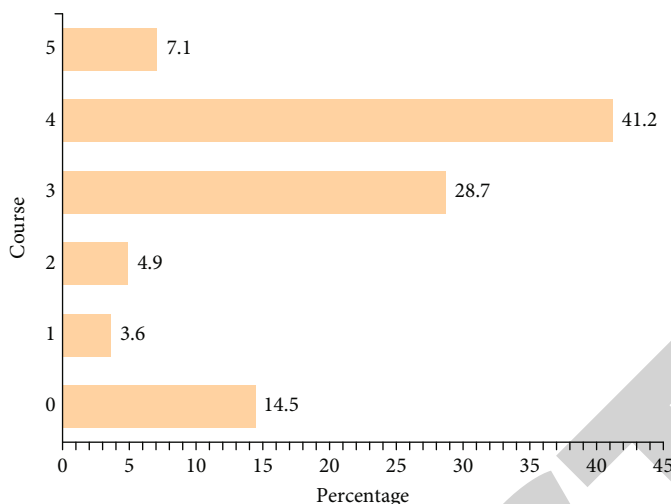


FIGURE 8: Percentage of courses taught by university teachers.

College teachers can take the ability and quality evaluation as a standard to measure themselves at any time. When there is a deviation from the evaluation standard in teaching, they should make corresponding adjustments in time. Find out what is good and what is not according to the standard. The good performance should be maintained, and the insufficient should be adjusted in time. At the same time, college teachers can also supervise and motivate themselves in accordance with the standards in a timely manner and make timely adjustments and controls for their slack in their usual work, so that the teaching tasks can reach a satisfactory state.

5. Conclusion

This paper takes the improvement of college teachers' professional quality as the starting point, adopts the analytic hierarchy process with deep learning and comprehensive evaluation function, draws lessons from foreign teachers' professional quality evaluation models, studies the specific impact of various factors on college teachers' professional quality evaluation and the corresponding improvement measures, and establishes a complete set of college teachers' professional quality evaluation system model. The comprehensive evaluation index system of university teachers' quality is to use the methods and means of economics or management and design relevant indicators to quantify the elements in the knowledge structure, ability structure, and ideological and moral quality that characterize the quality of university teachers and express them with certain data, which can be used as the basis for measuring the quality of university teachers. Whether the comprehensive evaluation system of teachers' quality in colleges and universities can give full play to its functions and benefits depends not only on whether the index structure it designs is reasonable but also on whether the evaluation method is scientific. At present, some colleges and universities ignore the comprehensive evaluation of teachers' quality. Even though some schools have established relevant evaluation systems, they are mainly limited to qualitative evaluation rather than quantitative

evaluation of teachers' quality, which leads to injustice in the performance evaluation of college teachers.

The purpose of this study is to further improve and perfect the content of the evaluation index through the construction of the comprehensive quality evaluation index system of university teachers, so as to make the selection of evaluation index more scientific and guiding, guide the development of quality education in colleges and universities, and provide direction for the comprehensive quality evaluation of university teachers. Through the construction of comprehensive quality evaluation index weight system, using analytic hierarchy process and deep learning method, set the weight value of indicators at all levels, and provide index weight reference for the comprehensive quality evaluation of college teachers. Through the formulation of the workload table for the comprehensive quality evaluation of college teachers, this paper provides methods and ideas for the comprehensive quality evaluation of college teachers.

The evaluation of college teachers is an activity to judge the practical or potential value of college teachers' work. Its purpose is to mobilize the enthusiasm of teachers, stimulate teachers' self-evaluation and self-adjustment, promote teachers to study business, improve teaching efficiency and quality, and serve the goal of talent training. The establishment and application of this evaluation system in colleges and universities can ensure that a comprehensive evaluation is carried out based on different evaluation purposes and requirements in the evaluation process. It can not only identify the actual situation of the comprehensive quality of college teachers but also have a significant role in selecting the best and encouraging development. With the help of the comprehensive evaluation and full evaluation of teachers, it can not only effectively stimulate the continuous development and improvement of the quality of college teachers. At the same time, it can also play a positive role in promoting the continuous development of the comprehensive quality training of college teachers. It can be seen that the practicality and value of this evaluation system are particularly significant.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The author declares that there are no conflicts of interests.

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