

Retraction

Retracted: Subjective Employment Obstacle of College Students and Its Predictor Model Based on Deep Learning

Wireless Communications and Mobile Computing

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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.

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- [1] Y. Wang, "Subjective Employment Obstacle of College Students and Its Predictor Model Based on Deep Learning," *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 7955490, 9 pages, 2022.

Research Article

Subjective Employment Obstacle of College Students and Its Predictor Model Based on Deep Learning

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With the development of higher education in full swing, the number of college students in China is increasing, the employment pressure of college students is increasing, and the employment situation in universities is not optimistic. Subjective career obstacles are obstacles that individuals may encounter when they perceive themselves according to their own conditions and surrounding environmental factors based on their future career pursuit and goals. In this paper, it is of practical significance to use the employment confidence index of college students to analyze and predict their employment confidence. Based on DL (deep learning), a model GM-BPNN (Gray model-BP neural network) of subjective employment obstacles of college students and its predictive factors is proposed. Initially, the employment data of a university are collected and normalized. Then, GM and BPNN are used to model and predict the number of college students' employment from different angles. Finally, the weights of the prediction results of GM and BPNN are determined, and the final prediction results of the number of college students' employment are obtained by weighting. The results show that the relative error of the combined model is smaller and the accuracy is higher.

1. Introduction

Graduates of universities look for jobs in society that are suitable for them. Only as the economy grows will they be able to provide a sufficient number of jobs, and college students will be able to find work without difficulty. The relationship between graduate supply and demand is currently tight, and the conflict between rapid growth in the scale of college graduates and insufficient economic development and regional imbalance has become a major barrier to college students finding work [1, 2]. Individuals' cognition and evaluation of factors that have a negative impact on their employment in themselves and their environment are the focus of subjective employment barriers. Instead of being objective, this assessment is subjective. Individuals may exaggerate or underestimate these factors. These factors, on the other hand, have a real impact on people's thinking, emotions, and decision-making [3, 4]. Individuals are influenced to make the best career-related decisions by subjective employment barriers, which reconcile career

expectations. The link between subjective employment barriers and career adaptation is complicated, which can limit people's career options while also motivating them to work harder to achieve their goals [5].

In the field of image and natural language processing, DL (deep learning) [6] has made a lot of achievements, and many model structures, such as the convolution BPNN structure in the image field and the cyclic BPNN structure of speech, have become the best or general solutions in this field [7]. BPNN (BP neural network), as an artificial intelligence algorithm, has strong nonlinear mapping ability, self-organization, and self-adaptation ability [8]. The prediction model combined with BPNN and gray prediction has good pertinence to the prediction fields with nonlinearity, uncertainty, and less historical data [9, 10]. Among them, GM (gray model) regards the employment of college students as a gray system. By analyzing the characteristics of the gray system, discover the changing trend of the number of university students employed, thus realizing the prediction of the number of college students' employment. BPNN has a

good nonlinear modeling ability, which can track the fluctuation trend of the number of college students' employment, and its prediction accuracy is higher than GM's. However, BPNN also has some shortcomings, such as it cannot describe the linear variation characteristics of college students, and the prediction results fluctuate greatly, which sometimes makes the prediction accuracy not ideal [11].

The research on the subjective employment barriers of college students has an important application value for guiding college students to relieve their employment psychological pressure and effectively deal with professional competition. Therefore, this study intends to explore from the group of college students, fully understand the characteristics of college students' subjective employment obstacles, and then give employment-related guidance from the external environment and internal differences of college students [12]. Therefore, this paper proposes the GM-BPNN (Gray model-BP neural network) model of subjective employment obstacles for college students, which is based on DL. This model creates different GMs for the main factors that influence college students' employment confidence, and then uses the predicted value of each GM as an input to BPNN to create a combined prediction as the final predicted value. The combined model's relative error of the predicted value is smaller, and its accuracy is higher, according to the results.

2. Related Work

The research shows that college students are aware of a large number of occupational barriers, including nationality, gender, family economic and political background, family attitude, their abilities, skills, and opportunities for education. However, some researchers have found in practice that it is sometimes difficult to completely divide occupational barriers into internal and external categories. Many obstacles listed by the subjects can be attributed to both individual factors and environmental factors, so it is proposed to classify the internal and external occupational obstacles into a general category. Literature [13] holds that subjective employment barriers are career-related barriers that individuals think exist at present or may encounter in the future, and need not be based on realistic background and real information. Literature [14] holds that career obstacles are the factors that make you unfit for a certain career. This definition is rather general, and the explanation of its connotation is not clear. It can be considered that it refers to the part of personal ability in occupational disability, and at the same time, it also includes external environmental factors. Literature [15] selects college students as the research object, and in many studies, it is found that although college students of different genders have the same degree of perceived occupational barriers, they perceive different types of these barriers. Literature [16] explores the characteristics of high school students' academic disability and occupational disability. The results show that female high school students are higher than men only in academic disability, but there is no significant difference between them in occupational disability, but women perceive more obstacles from

gender discrimination. Literature [17] shows that women generally believe that the lack of relevant professional information and gender discrimination are the biggest obstacles to their career development. At the same time, women perceive more obstacles than men in the stage of pursuing career goals. The survey shows that college students generally have high subjective employment barriers [18]. At the same time, students' perceived employment barriers are different with different types of schools and geographical locations.

The breakthrough progress of deep learning in image processing, speech recognition, and natural language processing has sparked widespread concern in recent years. In contrast to image, voice, and other data, network application data are typically presented with multifield category characteristics, and after processing, it has high dimension and sparseness. In literature [19], the balance between memory and generalization in personalized recommendation is effectively solved by combining a linear logistic regression model with a nonlinear depth BPNN. Literature [20] embeds sparse data into a continuous vector space using layer representation, then obtains combined features using pairwise crossing between features, which is equivalent to a factorizer model, and finally feeds into depth BPNN. The literature [21] proposes an interest extraction module for modeling abstract user interests hidden behind specific historical user behaviors. Learning the nonlinear relationship between features directly in the original space, as opposed to manually designing features, has greatly improved efficiency and accuracy, according to the literature [22]. The second-order combination feature is introduced in the literature [23], and it solves the problem of sparse data parameters being difficult to train by matrix decomposition.

3. Research Method

3.1. An Analysis of the Causes of Subjective Employment Obstacles of College Students. Subjective employment barriers are the existing or future employment-related barriers perceived by individuals, which emphasize individuals' evaluation and cognition of themselves and the current environment, while individual attribution refers to the tendency of individuals to produce positive or negative events in life based on their past experience and current expectations. If people attribute the negative factors related to occupation to internal and controllable factors, then people are more likely not to perceive them as obstacles, but to improve the chances of career success and satisfaction. Therefore, think about whether the individual will define the difficulties and obstacles encountered in the process of professional development as insurmountable professional obstacles, in which individual attribution style plays a very important role. Individuals with different attribution styles will use completely different processing mechanisms to deal with past or future career obstacles, which are based on past success or failure experiences.

At present, the employment situation of college students in China is grim, the overall level of social requirements for workers' quality is constantly improving, and the

popularization of higher education is only a necessary measure to meet this social need. If the employment of college students is still measured according to the requirements of elite education era, it will inevitably lead to a huge contrast between psychological expectation and reality [24]. In order to cope with this situation, college students need to know the skills and requirements of various occupations in the society and constantly narrow the gap between their own conditions and the requirements of this occupation.

Some universities do not pay enough attention to college students' ideological and political work, neglect college students' ideological and political work, and lack the education of ideals and beliefs, outlook on life, values, and world outlook, resulting in a lack of entrepreneurial dedication and serious utilitarian thoughts among some college students. It is difficult to prioritize national interests and social needs when choosing a job, to combine personal wishes with social needs, and to focus on the overall situation and obey national needs when personal interests conflict with national interests. Furthermore, the training objectives are unclear or unrealistic, the training scheme is lacking in scientificity and rationality, it lacks its own school-running characteristics, and the teaching contents and methods are simple and unified, resulting in the waste of structural talents and leaving some graduates "unemployed" upon graduation. As a result, universities currently focus solely on the practicality and immediate impact of employment guidance content, ignoring its scientificity, foresight, and creativity, resulting in procedural, passive, and empirical guidance that lacks systematic theoretical and scientific guidance.

Some employers lack a proper understanding of academic qualifications, believing blindly in the relationship between academic qualifications, quality, and ability in order to accept graduates as a political achievement, blindly pursue high academic qualifications, compare themselves to one another, and unrealistically stipulate that only graduates with a postgraduate degree or higher will be accepted, while those with an undergraduate degree or lower will be rejected. There is a lack of scientific understanding of the structure of talent knowledge and its development potential. Some employers have overemphasized short-term practical ability and work experience over the rationality of cultivating college students' talent level and structure, as well as their potential development ability. Some employers' leaders only consider employees' work performance during their tenure, strive to reduce labor costs, and ignore the need for talent reserve in the long-term development of businesses, so they ignore the benefits of college graduates and refuse to pay the cost of retraining human resources. Because this type of thinking leads to a lack of career expectations and motivation, cultivating critical consciousness is especially important.

3.2. Construction of Predictive Factor Model of Subjective Employment Obstacles for College Students. Graduates have just stepped into the society, and there are still many problems in career change, which are embodied in the maladjustment of graduates to their current income level,

the maladjustment of their abilities and the social environment and conditions such as the cultural atmosphere of their units. The most important adjustment of college graduates' career in the early stage is the adjustment of professional roles, which can provide opportunities for economic support and more satisfactory living conditions. Occupation may be the decisive factor to bring the mobile into the mainstream of urban society.

Career development is an important embodiment of graduates' social life at the early stage of their careers, and it is also one of the important contents of the research on the social adaptation of college graduates and the smooth realization of role transformation. College graduates get economic resources through their jobs, which is the primary guarantee for their survival and self-development, and these resources should be obtained through their interaction with society, which is regarded as "purposeful."

Because there are unemployed students among the graduates of major universities, the employment data classification method based on GM and BPNN is used to screen the employment data of college students and obtain the employment data of employed college students.

The expression of GM is differential equation, which describes the continuous process of things' development. The GM used in this paper is a univariate first-order differential equation, that is, GM(1,1) model. Remember that the original sequence is as follows:

$$X^{(0)} = \{x^{(0)}(1), x^{(0)}(2), \dots, x^{(0)}(n)\}. \quad (1)$$

A new sequence is obtained by accumulating the original sequence once:

$$x^{(1)}(k) = \sum_{i=1}^k x^{(0)}(i). \quad (2)$$

According to the GM theory, the differential equation of GM(1, 1) model is as follows:

$$\frac{dx^{(1)}}{dt} + ax^{(1)} = u. \quad (3)$$

Among them, a is the development gray number and u is the endogenous control gray number.

Because BPNN has good modeling performance and strong adaptability, this paper chooses BPNN to model the number of college students' employment. The BPNN structure is shown in Figure 1.

When the input vector is known, the BPNN can be constructed as follows:

$$u(k-1) = [u_1(k-1), u_2(k-1), u_{n_i}(k-1)]^T. \quad (4)$$

In order to speed up the convergence, the weights of BPNN are dynamically adjusted, namely:

$$\Delta w(k) = \eta[(1 - \alpha)D(k) - \alpha D(k-1)]. \quad (5)$$

Each attribute of employment data is generalized, and the original data set of college students' employment is divided into a conditional attribute set and a target attribute

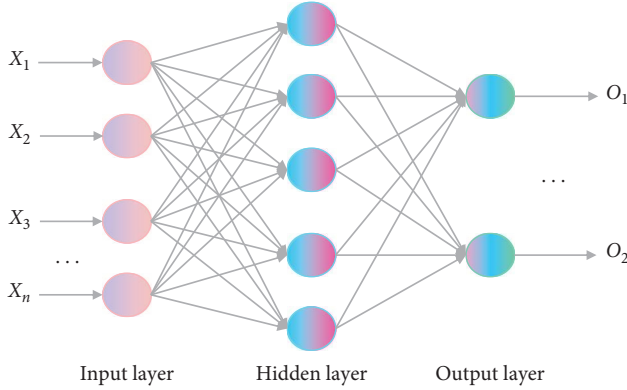


FIGURE 1: Structure of BPNN.

set. The goal of generalization is to divide the interval of continuous employment attributes in the original data set of college students' employment into many cells, each with a discrete symbol [25]. In order to create a decision-making system, match the nodes in the hierarchical classification model with the conditional attributes of the employment data set to be classified. See Figure 2 for details.

Search from left to right to get the first matching node. The trained BPNN model in this node is used to classify the employment data set, and the classification results of employed and unemployed data in the original employment data set are screened [12, 13].

If the chain in stationary distribution is Y , the expected value FY and variance EY of steady-state employment quality grade (employment status) are as follows:

$$FY = \sum_{j=1}^M j\alpha_j, \quad (6)$$

$$EY = \sum_{j=1}^M \alpha_j (j - FY)^2.$$

Among them, j said employment level (job level).

Let $y_k(n)$ be the actual network output of neuron k at time n when input $x(n)$, and $d_k(n)$ be the output of the corresponding sample, then the error can be written as

$$e_k(n) = d_k(n) - y_k(n). \quad (7)$$

Error correction learning is to minimize the objective function based on $e_k(n)$ so that the actual output of each output neuron in BPNN is the closest to the output of the sample in the sense of statistics.

In the competitive learning of the network, the output units compete with each other, and finally only the strongest one can be activated. Rules are expressed by the following formula:

$$\Delta w_{kj}(n) = \begin{cases} \eta(x_j - w_{ji}), & \text{If neuron } j \text{ wins the competition,} \\ 0, & \text{If neuron } j \text{ fails to compete.} \end{cases} \quad (8)$$

When the learning system is in a stable environment (the statistical characteristics do not change with time),

theoretically, learn the statistical characteristics of the environment through supervised learning, which can be remembered by BPNN as experience; If the environment is unstable, the usual supervised learning cannot track this change. To solve this problem, the network needs some adaptive ability.

The modeling process of the number of college students' employment based on the combination method is shown in Figure 3.

People's social interactions require an understanding of what behavior means, and this understanding is based on a certain social culture, which can only be achieved through shared value standards. Communication and cooperation are more or less difficult for people from different cultural backgrounds, especially because of differences in values. Values are a set of cultural standards by which members of society can distinguish between right and wrong and live their lives in accordance with these standards. College students will eventually learn and understand the new environment's value system and standards, but those who are severely affected will find it difficult to adjust, if not outright reject, the original environment's value system and standards, affecting the smooth transition of roles and their career development.

Communication quantity and quality are the two most important factors in determining communication power. The breadth, speed, and frequency of communication activities are referred to as communication quantity. The amount of communication and how many resources the communication subjects receive from the outside world are determined by the breadth, speed, and frequency of communication. The structure of the communication subject, the structure of the communication object, and the structure of the communication content are all examples of communication quality. This type of identity develops as a result of interactions with others, as a reflection of other people's perspectives on themselves, and as a self-concept when imagining others' assessments of themselves. This self-expression corresponds to Habermas' dramatic actions. The interactive participants form an audience for each other and present themselves in front of them in drama action.

4. Results Analysis and Discussion

In social life, everyone performs different social obligations and follows different social norms, thus playing different social roles. The clearer and more comprehensive the understanding of social roles, the more successful the transformation of roles, and the more in line with social expectations. Therefore, in the process of learning to recognize roles, that is, to know yourself, others, and society, strengthen the understanding of social roles. In the process of self-role understanding, not only must we fully see our own strengths and strengths but also clearly understand our own shortcomings and deficiencies and maintain the organic unity and balance of self-affirmation and self-denial. Only by knowing yourself correctly can we develop ourselves better.

According to the results of descriptive statistics (Figure 4), most of the factors are in a moderate range on average, while

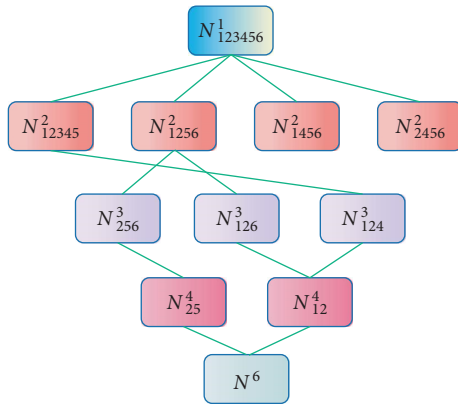


FIGURE 2: Details of node derivation.

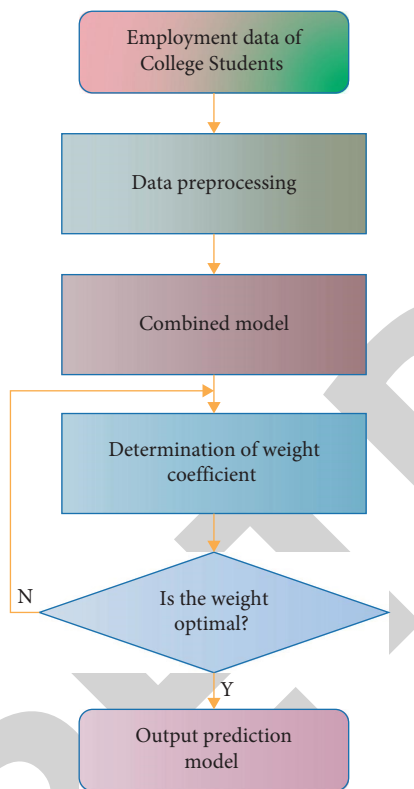


FIGURE 3: Modeling process of employment number of college students.

the average score of the employment competition factor is much higher than the other five factors. It can be inferred that the employment obstacles perceived by college students are largely due to external factors such as high competition pressure in the employment market and incomprehension of employment channels.

From this, it can be inferred that the sources of obstacles that college students may encounter in employment are unbalanced, and most of the obstacles they perceive come from the competitive pressure of the job market and their ignorance of relevant employment policies.

The hope and expectation of society for college graduates' professional roles are that they will continue to improve

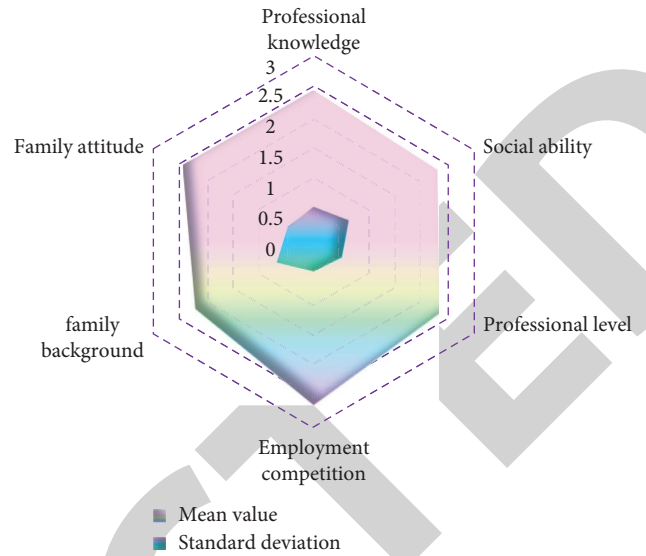


FIGURE 4: Descriptive statistics of subjective employment obstacles of college students.

their self-orientation. They can only play their roles well if they understand the requirements of society for roles. It is worth noting that self-expression should be based on seeking truth from facts, and that one's abilities, specialties, and advantages should be fully disclosed, without resorting to deception. Furthermore, a good sense of propriety is required; otherwise, one will be accused of "showing off." Not only will you avoid weightlessness in this manner, but you will also be able to properly express yourself in order to achieve success.

People will seek a sense of security after they have met their basic physiological needs. Residential areas meet people's safety needs to some extent due to their unique material structure. The function of residential place is to meet the survival needs of graduates entering the social environment, and it is one of the most important indicators to measure the social living conditions of graduates. Second, the living environment has a significant impact on graduates' employment prospects. The ability to adapt to one's living environment is a critical component of life stability.

Based on this life experience, it will take some time for graduates to psychologically accept this social life feature at the early stage of their career. Therefore, in this process, they pay more attention to pursuing a kind of friendship emotion in the campus environment in social life, and their interpersonal communication also follows such a psychological need. The range of communication is extremely limited.

The trained network is simulated with `sim()` function, and then the simulated results are denormalized and compared with the original data. The comparison between the predicted data and the real data is shown in Figure 5.

It can be seen from Figure 5 that the obtained simulation data are very close to the real data. This shows that after training, BPNN has a good approximation effect on the prediction of college students' psychological status.

For college graduates to change their roles, a significant psychological shift is a necessary criterion. They can only

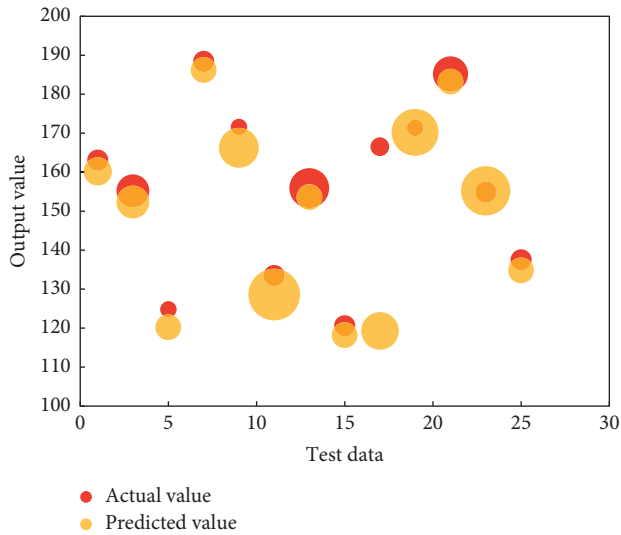


FIGURE 5: Graphic output of posttraining network.

explain the influence, shaping, and promotion of a social role on graduates' personalities, as well as the completion of the socialization process from the student role to the social role, once they have become psychologically accustomed to it. As a result, the foundation of graduates' social adaptation is the transformation of graduates into professionals based on external performance and internal psychology, which is essentially the formation of social identity. It can be seen that for college students in the new period, there is a significant problem in identifying their jobs in their role of psychological transformation, and many people are unhappy with their current jobs, making role transformation difficult to achieve smoothly.

In order to test the application performance of this model, the employment trends of college students with different majors are tracked. The tracking subjects are economics and finance (A), logistics management (B), business administration (C), customs management (D), e-commerce (E), administration (F), and international politics (G). The results are shown in Figure 6.

By analyzing the test results of recall rate in Figure 6, there are differences between these two models in tracking the employment trends of the 7 majors, and the recall rate of the tracking results of this model is higher than that of SVM (Support Vector Machine) model. Therefore, the tracking performance of this model is the best.

College graduates have entered a relatively complex social environment from a simple campus environment, and their attitude toward the current environment will directly reflect the closeness of graduates in their early career and social environment, and at the same time, it also reflects the degree of their transformation from the student role to the social role. At the initial stage of college graduates' career, they have just started to leave the relatively simple campus environment and enter the relatively complex social environment. From a group environment with similar cultural background and strong homogeneity to a group with uneven background and

strong heterogeneity, they still feel at a loss in many aspects, which will lead to obstacles in social environment identification and role transformation.

The model established above is used to predict the original data, and the result is shown in Figure 7.

Completing the role change after college is only the first step in adjusting to society. If they want to advance in their careers and demonstrate their abilities, they should learn from society, put their skills into practice, contribute more to the country and the people, and repay society. Some objective phenomena show that graduates' school performance cannot be completely equal to their ability once they start working. The question is whether they can find their own social position, develop and improve their professional skills and management level in practice, and realize their full potential.

Figure 8 shows that the prediction of the employment number of 50 college students is fairly accurate, with little deviation from the actual value. The results of the experiments show that this model accurately describes the number of college students employed in various directions and provides a good prediction result for the number of college students employed.

In order to better analyze the prediction effect of this model on the number of college students' employment, GM and BPNN were selected to conduct a comparative test on the number of college students' employment. Their results are shown in Figures 9 and 10.

A comparative analysis of the number of college students' employment in Figures 9 and 10 shows that GM's prediction effect of the number of college students' employment is obviously worse than BPNN's because BPNN's prediction performance is better than GM's, but compared with this model, BPNN's prediction accuracy is relatively poor, which indicates that this model has established a better prediction model of college students' employment, which can better reflect the changing trend of the number of college students' employment and has obvious advantages.

It is found that professional knowledge and professional knowledge are important components of subjective employment obstacles of college students, and whether college students can successfully obtain employment is closely related to these two parts. Therefore, they should make relevant preparations at school, pay attention to the training of professional knowledge, vocational skills, communication and expression skills, actively learn the skills of job application and interview, fully understand the employment information of their major, constantly enhance their employment competitiveness, enhance their self-employment efficacy, and make themselves talents needed by the society.

When college graduates join a unit, they should strive not only to improve their professional abilities but also to intentionally exercise their organizational and coordination skills. Think positively and gain a better understanding of things. Someone once said that a person's insight is first and foremost a person's management ability, which is the foundation for becoming an excellent manager. As a result, graduates should work hard once they start their new jobs. Second, positive thinking, which involves consciously

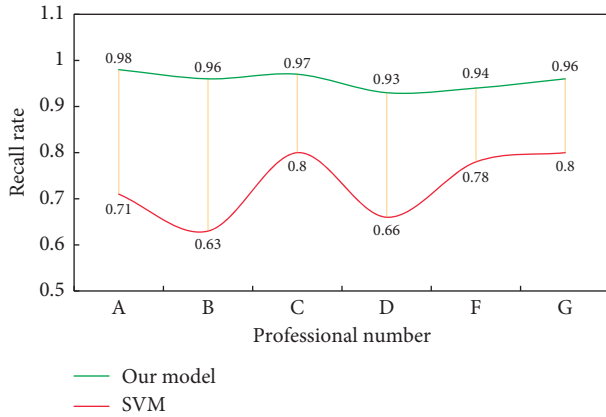


FIGURE 6: Comparison of recall rate of two models.

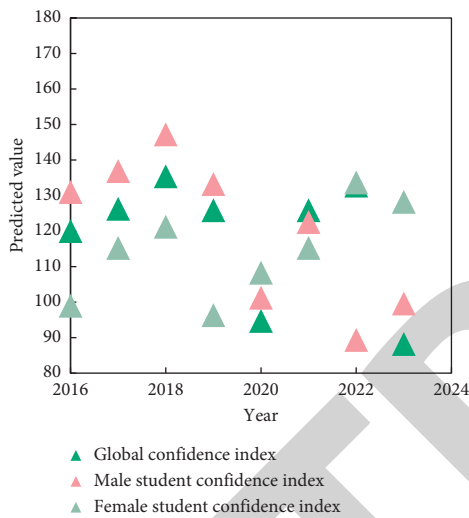


FIGURE 7: Prediction result.

exercising our ability to analyze and solve problems by identifying difficult problems at work, actively analyzing them, and putting forward practical solutions in a timely manner.

According to the findings, college students believe that the most significant barrier to employment is their lack of vocational knowledge and employment policy. As a result, the school should improve the training of students' vocational knowledge and skills so that they can fully comprehend the knowledge of job selection and job-hunting skills while also cultivating their entrepreneurial awareness and spirit. Through the school portal, mass sending of short messages, bulletin boards, and broadcasting, schools can help students master their major-related recruitment information and understand the job market for the first time. The importance of family cannot be overstated. Parents should respect their children's career choices but not interfere with their freedom of choice, pay attention to the development of good career values and a positive career mentality in their children, and provide adequate psychological support and help for their children.

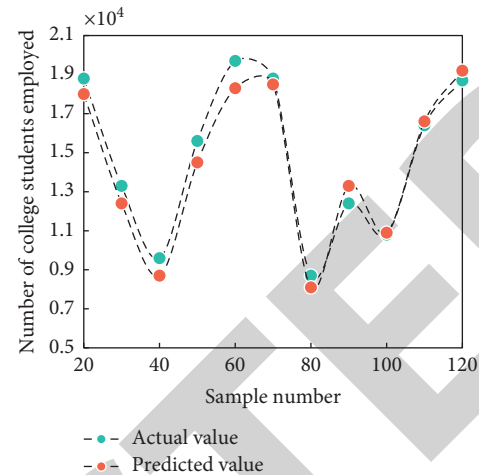


FIGURE 8: Prediction results of the employment number of college students by the GM-BPNN model.

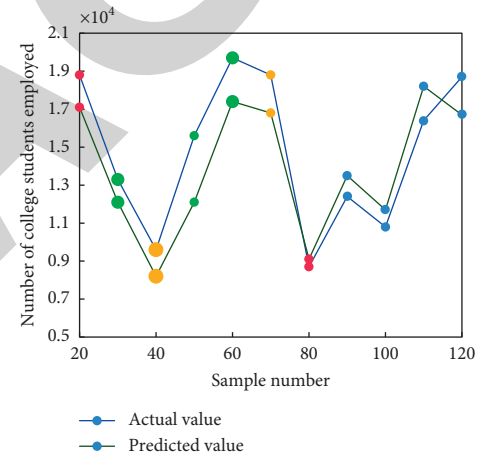


FIGURE 9: GM's prediction results of the employment number of college students.

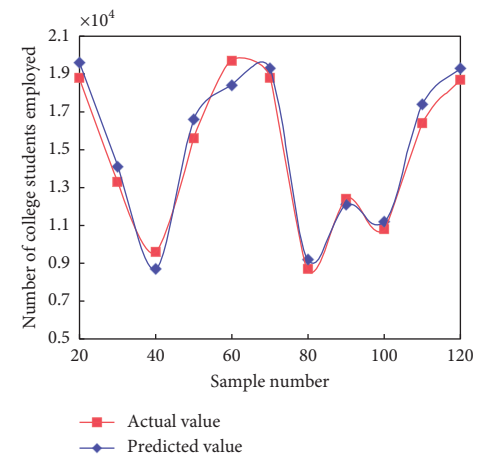


FIGURE 10: BPNN's prediction of the number of college students' employment.

5. Conclusion

Professional knowledge, social skills, professional level, employment competition, family background, and relative attitude make up a six-factor model of subjective employment obstacles for college students. And, through job-choosing efficacy, psychological resilience's professional values have an indirect effect on subjective employment barriers among vocational college students. The most important predictor of subjective employment obstacles is job-hunting efficacy. The GM-BPNN model is used to model the number of college graduates employed from various angles, and the contribution of GM and BPNN to the prediction of the number of college graduates employed is described by determining the weights in a reasonable manner. This combination forecasting model can also be used to objectively forecast other economic factors in China, such as consumer confidence index forecasting, as a supplement to traditional forecasting.

Data Availability

The data used to support the findings of this study are included within the article.

Conflicts of Interest

The author does not have any possible conflicts of interest.

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