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Retraction

Retracted: Deep Learning BP Neural Network Guided Evaluation of Students' Innovation and Entrepreneurship Education

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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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

In addition, our investigation has also shown that one or more of the following human-subject reporting requirements has not been met in this article: ethical approval by an Institutional Review Board (IRB) committee or equivalent, patient/participant consent to participate, and/or agreement to publish patient/participant details (where relevant).

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] J. Yi and X. Cui, "Deep Learning BP Neural Network Guided Evaluation of Students' Innovation and Entrepreneurship Education," *Journal of Robotics*, vol. 2022, Article ID 2425069, 10 pages, 2022.

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Research Article

Deep Learning BP Neural Network Guided Evaluation of Students' Innovation and Entrepreneurship Education

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With the promotion and development of the "Internet+," the computer major has become a hot major in innovation and entrepreneurship education. It is more and more necessary to carry out the refined differences between majors. This is a training issue, but not an employment issue. It has become a major measure for the development of international education. The international vocational training system of "three combinations and five drives" has been established and implemented. In February 2020, the State Department of Higher Education issued the key work points of the Department of Higher Education of the Ministry of Education in 2020. The document makes it clear that it must be implemented in the whole process of talent training. BP neural net model will be a brand-new research and development idea. By constructing a scientific and reasonable training assessment index system, the efficiency of computer professional technology training can be improved. Taking the development of computer specialty as the main research objective, this paper firstly establishes the evaluation index system of computer specialty for the first time, then makes a scientific evaluation of computer specialty by using BP neural net model and then carries out an empirical study of innovative employment mode through the evaluation index system and makes an empirical quantitative analysis. It is expected to be an effective basis for the social policy research of developing computer specialties.

1. Introduction

Innovation and entrepreneurship education refers to a new type of traditional higher education that can grow into market economy actors with innovative jobs. It is the basic education related to the future of the country. In order to cultivate talents, it is closely linked with talent training. It has been widely valued by countries all over the world and has profoundly affected the innovation and development of higher education [1].

In recent years, with the development of BP neural net technology, the application of BP neural net is becoming more and more popular, and the core of artificial neural net is calculation. BP neural net is a kind of feedforward network trained by error backpropagation. Applied BP neural net to the field of innovation and entrepreneurship education is one of the current research hotspots.

Since the 1990s, driven by western countries and famous international institutions, it has attracted special attention [2]. Chinese government departments have listed the cultivation of IT talents as a major national strategy [3]. In 1991, at the Tokyo International Innovation and entrepreneurship education seminar, the Japanese government summarized "innovation and entrepreneurship education" as cultivating people with personal ideas, creative spirit, creative ability, and management skills. From 1998 to 1999, the British Ministry of Education launched two special projects [4]. The level of it is ahead of other countries. Its courses have been extended to American college classrooms for the first time [5].

Under the background of economic informatization and globalization, the integration of various fields will be the new trend of it [6]. In October 2010, the general office of the State Council issued several opinions on vigorously promoting the

innovation training of colleges and universities and the independent innovation management of our university students, which further pointed out the direction and significance of developing innovation and entrepreneurship in higher education [7]. The article points out that innovation and entrepreneurship training should be further improved as a national plan [8]. This is also an important factor in China's higher education system. In March 2018, Premier Li proposed 13 innovations and entrepreneurship in the government work report, which fully highlighted the importance of innovation and entrepreneurship to China's development and pushed it to a climax [9]. Emphasizing that it is a national plan, and talent training is related to the future of the country [10]. At present, many domestic colleges and universities have offered innovation and entrepreneurship courses, but few universities have set it up. Its courses account for relatively few undergraduate courses, and the participants only account for a small part of the students. Its courses have not formed a systematic curriculum system or a complete evaluation system.

To sum up, innovation and entrepreneurship education are of great significance to the country, especially for the cultivation of innovation [11]. There is no model of it and no evaluation system. Therefore, studying this system for computer majors is in line with education and the need for reform [12].

First, it has further broadened the theoretical field of information technology evaluation, brought new thinking to the evaluation of science and technology entrepreneurship education of computer science in China and promoted the construction and development of the discipline. This paper mainly points out the teaching improvement strategies of computer majors, enriches the modern information technology basic theory of Chinese higher education and the employment-oriented theory of college students and further expands the theory of Chinese higher education [13].

According to the theory of BP neural net, this paper studies the information of students majoring in computer science at Jiangxi Normal University gives opinions on the informatization construction of computer science in the University and has great practical significance for the construction of network informatization in the College of computer technology and application [14]. This can improve the employment rate and self-improvement ability of computer majors [15].

2. State of the Art

2.1. Research on the Distribution Structure of Innovation and Entrepreneurship Education. The goal of it is to cultivate all students into the most revolutionary generation with entrepreneurial qualities. This means a comprehensive reform of the system of talent training ideas, talent training foundations, courses, talent training methods, implementation courses, education quality, teaching resource allocation, and all teacher training links. The number of research papers on "College Students' Innovation and Entrepreneurship Education" generally tends to increase. By January 2020, the keywords "innovation and entrepreneurship education" and "innovation and entrepreneurship teaching evaluation" will be determined first, and then the keywords will be imported into the CNKI database to realize fuzzy queries [16]. 43990 journal papers have been searched, including all CSCD and CSSCI sources. There are a total of 2737 journal papers and 2347 doctoral and master's theses, including 212 doctoral theses and 2135 master's theses. In recent years, although the number of researches related to it has declined partially, the overall trend has been on the rise, especially after 2019, the number of published papers has increased significantly [17].

The central point of the display is colleges and universities and the entrepreneurship education of college students [18], as shown in Figure 1.

2.2. Research on Innovation and Entrepreneurship Education Methods and Models. Most researchers at home and abroad have introduced a more flexible, participatory, and practical teaching mode of innovation and entrepreneurship in universities [19]. Researchers at home and abroad have conducted extensive discussions on the theory and mode of innovation and entrepreneurship education [20]. Deng pointed out that it is very important to correctly grasp the objectives, process, and support system. Experts have made many achievements in setting up measurement indexes and measurement models for the market. They mainly use the AHP analysis method (hierarchical index analysis method), fuzzy comprehensive judgment method, Delphi analysis method, and index weighted average method to measure the importance of the index. Among them, the hierarchical index analysis method and the Delphi analysis method have become the methods recognized by many experts. Delphi analysis method, also known as expert communication analysis method, expert evaluation analysis method, and others, refers to consulting the prediction opinions of the members of the expert group through back-to-back communication. It corresponds to the brainstorming method, which is different from the above back-to-back investigation, which is to organize a meeting together, constantly put forward ideas and constantly questions and find a set of practical solutions through objective and continuous analysis.

2.3. Research on the Evaluation of Innovation and Entrepreneurship Education. In recent years, due to China's need for high-quality innovation and entrepreneurship talent training, the task of talent training in colleges and universities has become more and more important. Behind the upsurge of innovation and entrepreneurship training in China, it is particularly important to form a certain talent training evaluation mechanism. Research on information technology evaluation theory states that Liu Haibin used the AHP method to create the core evaluation index system. Ge Li introduced the CIPP method to assist the evaluation research in colleges and universities. As shown in Figure 2, in order to reduce the employment pressure, various departments have jointly formulated employment policy initiatives, which are characterized by departmental promotion and internal coordination [21].

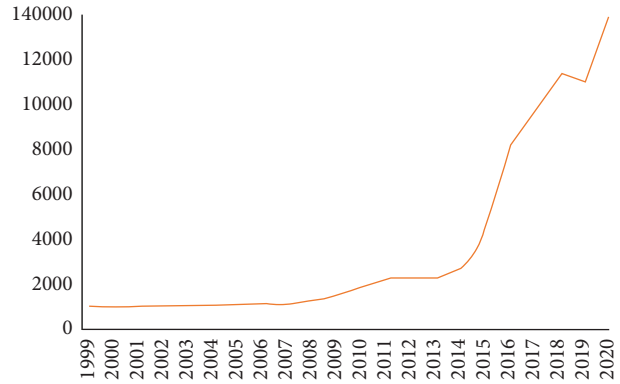

Figure 1: The overall trend of innovation and entrepreneurship education research.

From 2010 to now, it is in the second stage. The key is the preferential policies for job hunting issued by the competent social departments, which fundamentally alleviate the employment difficulties and stabilize society. In 2012, the state listed a large number of college projects as the second batch of national key university students' science and technology entrepreneurship training program pilots. From 2015 to 2016, it was also an important part of China's higher education system and was gradually promoted, as shown in Figure 3.

3. Methodology

3.1. Introduction to BP Neural Net. BP neural net is a concept proposed by physicists led by Rumelhart and McClelland in 1986. It is one of the most widely used neural net models. BP algorithm is a unique and charming program, while neural nets are challenging. For cutting-edge technology, the two are combined into a BP neural net. According to different principles and properties, neural nets can scientifically study complex phenomena and find the most reasonable countermeasures and methods. As shown in Figure 4.

3.2. The Main Steps of Applying BP Neural Net to Evaluation

3.2.1. BP Neural Net Structure. As the starting point of information input, the input vector plays a key role in information input. The expression method is as follows: and it can be assumed that $x0 = -1$; the hidden layer is the middle layer, which can directly control the change in the training efficiency of the neural net because the output vector is derived from the data. Therefore, it brings great training value. In the expression formula, the hypothesis y zero = - negative one can be directly added, which is of great value for the threshold change through the neurons in the output layer and also plays an important role in terminal training. The output vector of the output layer is $o = (o_1, o_2, \ldots\ldots, o_k, \ldots\ldots, o_t)^T$, and the hidden layer is an important process of transmission and change. The neural net has a great effect, and the matrix expression is $v = (v_1, v_2, \ldots\ldots, v_k, \ldots\ldots v_m)^T$ and because the output layer is the export port of the data, the generation between it and the hidden layer is of great significance to the BP neural net, so the matrix expression is $\omega = (\omega_1, \omega_2, \ldots\ldots, \omega_j, \ldots\ldots, \omega_l)^T$.

In the whole system, the mathematical connection between each part plays a role. First, the front part is also called the input layer, and the front-end part is used by ok and netk.

$$O_k = f(net_k), \quad k = 1, 2, \cdots, n,$$
$$net_k = \sum_{j=0}^{m} \omega_{ij} y_j, \quad k = 1, 2, \cdots, n. \tag{1}$$

The second is the middle part, also known as the hidden layer, which affects the middle part through yj and netj.

$$y_j = f\left(net_j\right), \quad j = 1, 2, \cdots, m, \tag{2}$$

$$net_j = \sum_{i=0}^{m} j v_{ij} x_i, \quad j = 1, 2, \cdots, m. \tag{3}$$

The unipolar sigmoid function is a category of functions, and the transfer function f(x) is applied to the neural net to play a role, and $f(x)$ can choose the unipolar sigmoid function.

$$f(x) = \frac{1}{1 + e^{-x}}. \tag{4}$$

Continuous functions generally have continuity and derivability. Then $f(x)$ has this property.

$$f'(x) = f(x)[1 - f(x)]. \tag{5}$$

Another category of function is the bipolar sigmoid function.

$$f(x) = \frac{1 - e^{-x}}{1 + e^{-x}}. \tag{6}$$

The final three-layer BP neural net is composed of the above parts.

BP coaching method is a process of introducing methods based on BP neural net and implementing coaching methods. The specific steps are shown in the figure.

Step 1: first determine the coefficient of the variable, which is a vector, and N is the number of samples.

$$\omega_{MI}(n) = \begin{bmatrix} \omega_{11}(n) & \omega_{12}(n) & \cdots & \omega_{1I}(n) \\ \omega_{21}(n) & \omega_{22}(n) & \cdots & \omega_{2I}(n) \\ \vdots & \vdots & \vdots & \vdots \\ \omega_{MI}(n) & \omega_{MI}(n) & \cdots & \omega_{MI}(n) \end{bmatrix}, \tag{7}$$

(7) The expression is the weight vector between the beginning part and the middle part I at the nth iteration.

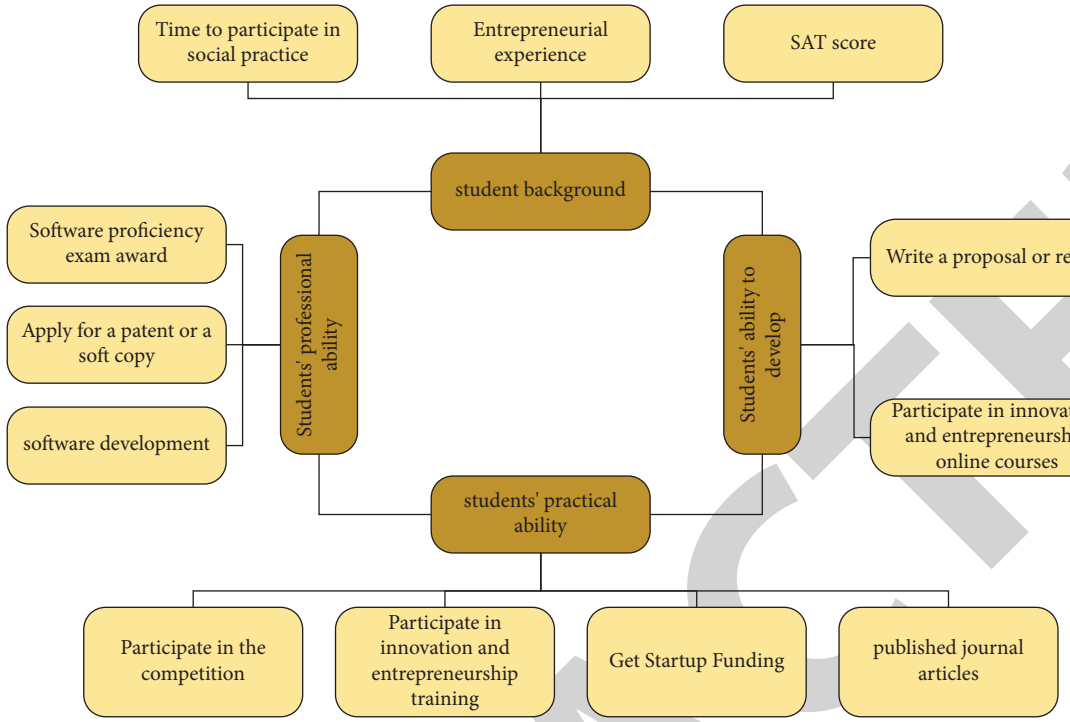

Figure 2: The main content of innovation and entrepreneurship education evaluation.

$$\omega_{MI}(n) = \begin{bmatrix} \omega_{11}(n) & \omega_{12}(n) & \cdots & \omega_{1J}(n) \\ \omega_{21}(n) & \omega_{22}(n) & \cdots & \omega_{2J}(n) \\ \vdots & \vdots & \vdots & \vdots \\ \omega_{I1}(n) & \omega_{I2}(n) & \cdots & \omega_{IJ}(n) \end{bmatrix}, \quad (8)$$

(8) is the weight vector between the middle part and the middle part J at the nth iteration.

$$\omega_{JP}(n) = \begin{bmatrix} \omega_{11}(n) & \omega_{12}(n) & \cdots & \omega_{1P}(n) \\ \omega_{21}(n) & \omega_{22}(n) & \cdots & \omega_{2P}(n) \\ \vdots & \vdots & \vdots & \vdots \\ \omega_{J1}(n) & \omega_{J2}(n) & \cdots & \omega_{JP}(n) \end{bmatrix}, \quad (9)$$

For the nth iteration, the weight vector is between the middle part J and the end part. After the output result is generated after n loop iterations, the actual output value is $y_k = [y_{k1}(n), y_{k2}(n), \cdots\cdots, y_{kn}(n)]$, $(k = 1, 2, 3, \cdots\cdots n)$, the expected output value is $d_k = [d_{k1}, d_{k2}, \ldots\ldots, d_{k3}]$, $(k = 1, 2, 3, \cdots\cdots, n)$.

Step 2: during the network initialization process, each $\omega_{MI}(n), \omega_{IJ}(n), \omega_{JP}(n)$ is assigned a nonzero random number and $n = 0$ at the same time.

Step 3: input the information about the sample XK. Since the sample information is the basic information of neural net training and is related to the network, $n = 0$.

Step 4: the weight of the middle part and the last part and the relationship between the output vectors.

$$v_p(np)\ p = 1, 2, \cdots, p. \quad (10)$$

Step 5: calculate the error E(n) according to dk and yk(n). Assuming that the set error is met, jump to the eighth step; assuming that the set error is not met, jump to the sixth step.

Step 6: firstly, all parameters and iteration times in BP neural net are counted, and then it is compared with $N+1$. If the former is equal to the latter, then the adjustment is in step 8. If the latter exceeds the former, the local gradient of neurons must be measured δ.

$$\delta_{\mathrm{pp}}(n) = y_p(n)\big(1 - y_p(n)\big)\big(d_p(n) - y_p(n)\big), \quad (11)$$

Step 7: inside the BP neural net, the weights between the front-end, middle, and end parts have a huge influence, so the premise is to calculate the weights, and then modify the weights according to the training error.

$$\begin{aligned} \Delta\omega_{jp}(n) &= \eta\delta_p^P(n)v_j^J(n), & j &= 1, 2, \ldots, J, \\ \omega_{jp}(n+1) &= \omega_{jp}(n) + \Delta\omega_{jp}(n), & p &= 1, 2, \ldots, P, \\ \Delta\omega_{ij}(n) &= \eta\delta_j^J(n)v_i^I(n), & i &= 1, 2, \ldots, I, \\ \omega_{ij}(n+1) &= \omega_{ij}(n) + \Delta\omega_{ij}(n), & j &= 1, 2, \ldots, J. \end{aligned} \quad (12)$$

Step 8: neural net training samples take time. Once the task is completed, please exit the training process directly. If not, adjust to step 3 above.

3.2.2. Improvement of BP Neural Net. BP neural nets are mature in both network theory and performance. Its performance varies with the difference in structure, but there are also disadvantages.

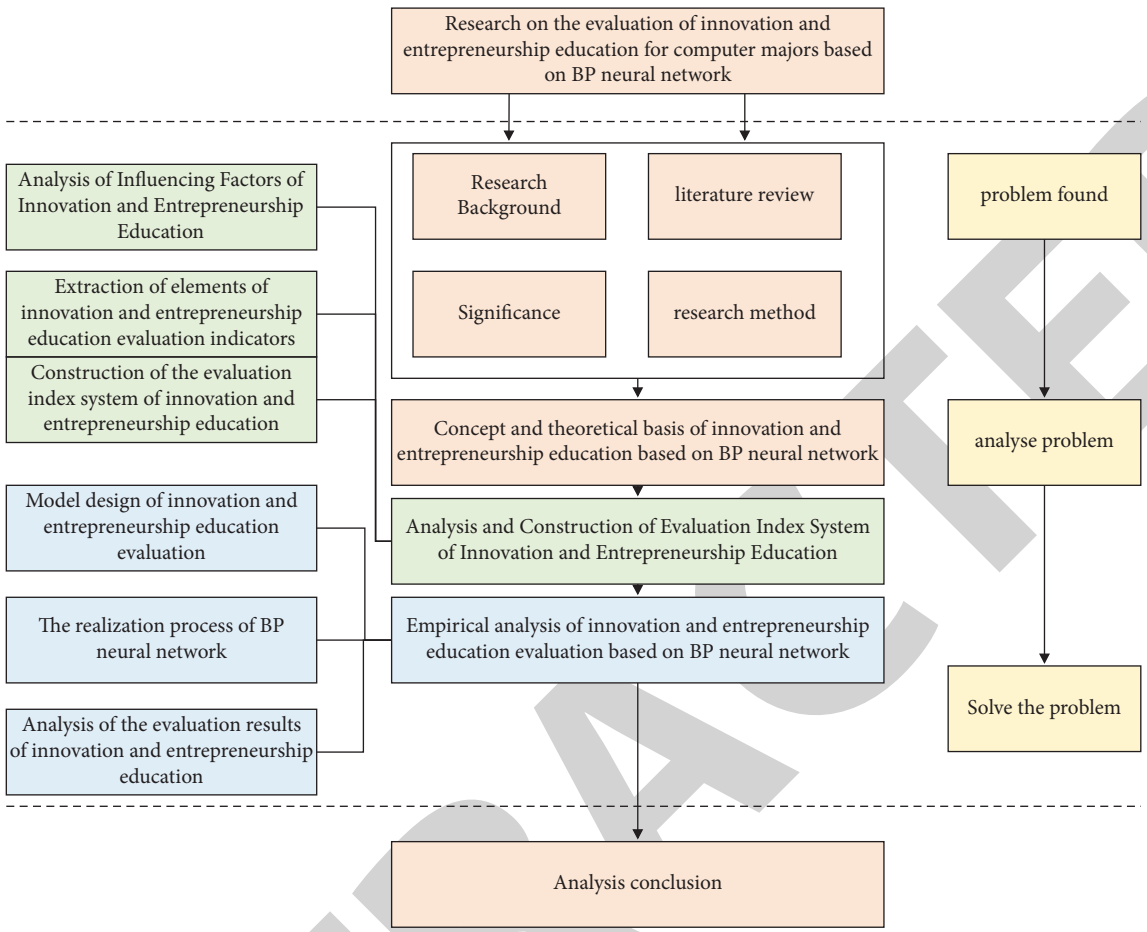

Figure 3: Technology roadmap.

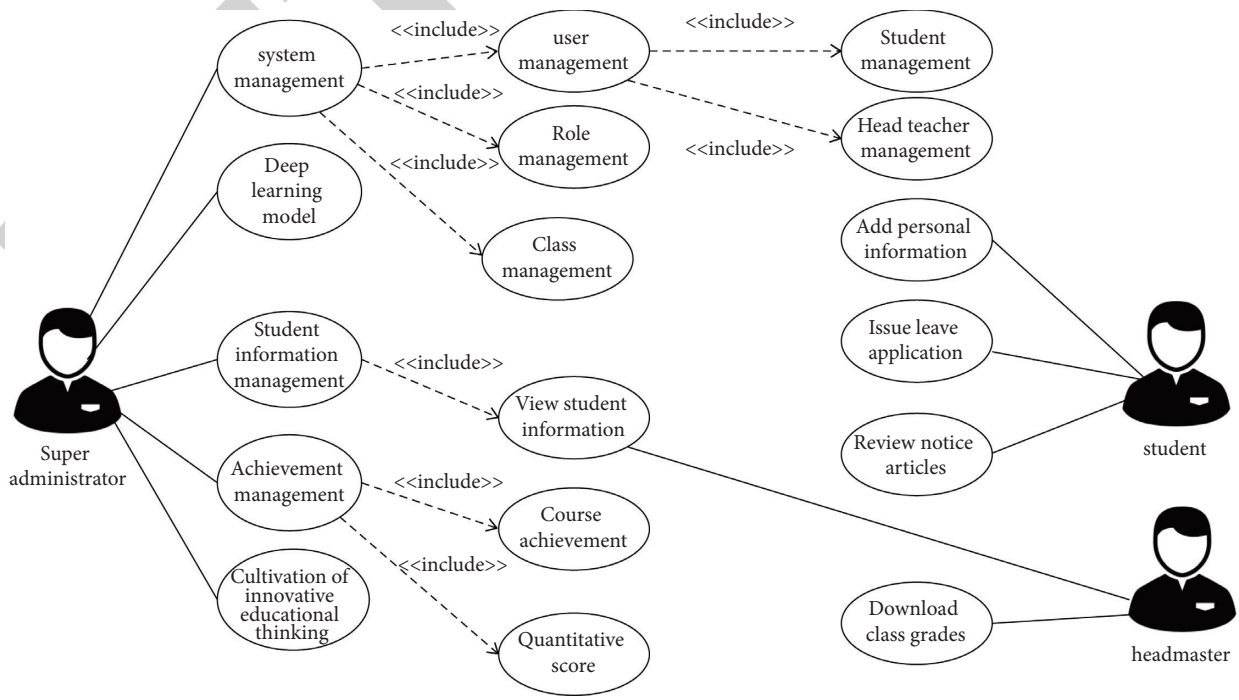

Figure 4: Construction of student innovation and entrepreneurship education based on the neural net.

(1) There is a contradiction between the local minimum and the global optimum, and it is difficult to obtain the global optimum.

(2) If the number of neural net training is large, the disadvantage is that the efficiency is low.

(3) Only on the basis of theoretical basis can we determine the scientific correctness of the estimation conclusion, especially the determination of the number of hidden layer nodes needs a theoretical basis.

(4) There is a conflict between mastering new data and forgetting old data, and neural nets often forget old data.

To address the shortcomings of neural nets, algorithms need to be tweaked and modified.

(1) The momentum term is increased. Learning rate η is related to the calculation of the BP neural net hypothesis η. If the value is too large, the network will accelerate convergence, but it will produce instability; and suppose η, if the value is too small, instability will be avoided, but the convergence rate is too slow. Therefore, the momentum term is introduced, where α is the momentum term.

$$\Delta\omega_{ij}(n) = \alpha\Delta\omega_{ij}(n-1) + \eta\delta_j(n)_v^i(n). \tag{13}$$

Considering (14) as a time series with t as a variable, t is from 0 to n, then

$$\Delta\omega(n) = \eta\sum_{t-0}^{n} a^{n-1}\delta_j(t)v_i(t). \tag{14}$$

(2) Adjust the learning rate. Assumed learning rate η, When the weight is changed, the overall error decreases, and with the change of the overall learning rate, the weight will also change in different amplitude, so that the value of the overall error changes. Therefore, it can be said that the overall learning rate has been adjusted.

(3) It is an excitation function of an odd number of dependent variables. The odd function is also a unique function. By taking the full odd function as the excitation function, the BP neural net algorithm can be accelerated. Among them, the hyperbolic tangent function is the most common odd function.

$$f(u) = a\ \tanh(bu) = \left[\frac{1-\exp(-bu)}{1+\exp(-bu)}\right] = \frac{2a}{1+\exp(-bu)} - a. \tag{15}$$

4. Result, Analysis, and Discussion

4.1. Reliability Analysis. By analyzing the number of hidden neurons and errors in the hidden layer of the BP neural net, as shown in Table 1, it is found that the more hidden layers, the less the training error, and the test error. When the number of hidden layers is 10, the test error reaches the minimum.

Table 1: Relationship between the number of neurons in the hidden layer and the error.

The number of hidden layers	Training error	Test error
3	1.2714	1.1282
4	0.8015	0.8244
5	0.6421	0.7299
6	0.5711	0.6713
7	0.5536	0.6910
8	0.4467	0.6588
9	0.3846	0.6474
10	0.2577	0.4532
11	0.1869	0.6655
12	0.1812	0.5994
13	0.1851	0.6880

Table 2: Reliability analysis of the questionnaire.

Attributes	α coefficient value
Student background	0.847
Students' professional ability	0.736
Students' practical ability	0.781
Students' ability to develop	0.701

The reliability value generally accepted by experts is 0.7. According to the conclusion of the reliability analysis, as shown in Table 2, the reliability value of all the questionnaires exceeds 0.7, the consistency of the questionnaires is high, and the corresponding reliability coefficient exists, indicating that the design of the questionnaire is reasonable and meets the corresponding conditions. Therefore, it can be found that the students' background, students' professional ability, practical ability, and development ability have certain reliability in the evaluation and analysis of the improved BP neural net.

4.2. Validity Analysis. This paper mainly uses SPSS software to analyze the validity. The data in Table 3 show that the load value and kmo value of each variable are equal to 0.5, the test results of their significance are equal to 0.01, and the interpretation rate of each variable is less than 60%.

4.3. Analysis of the Evaluation Results of Innovation and Entrepreneurship Education. Through the analysis of Table 4 and Figure 5, it can be seen that after the training of the improved BP neural net is completed, some test data corresponding evaluation value of innovation and entrepreneurship education for computer majors is obtained. The real value and the expected value of the network output are reasonably calculated. The real value and the expected value must be consistent without substantial change. Using BP neural net to detect and calculate the real value, it is proved that the real value is effective and the expected value is correct. The maximum relative error of both was 1.64%, which basically reached a reasonable level. After training, the real value of the neural net is as large as the expected value.

Table 3: Validity analysis of the graduate questionnaire.

Attributes	Question number	Factor loading values	Degree of explanation of variables (%)	Kmo value	Bantltt significance test
Student background	3	0.775	71.65	0.724	0.000
	4	0.834			
	5	0.801			
	6	0.772			
	7	0.766			
Students' professional ability	8	0.781	74.02	0.766	0.000
	9	0.766			
	10	0.872			
	11	0.734			
	12	0.702			
	13	0.832			
Students' practical ability	14	0.858	72.68	0.736	0.000
	15	0.734			
	16	0.703			
	17	0.832			
	18	0.724			
	19	0.802			
	20	0.728			
	21	0.731			
Students' ability to develop	22	0.801	69.98	0.736	0.000
	23	0.712			

Table 4: Comparison of expected and real values.

No.	Expected value	Real value	Error (%)
1	95.0102	95.7107	−0.91
2	92.7401	93.2035	−0.07
3	80.0677	81.0092	−1.20
4	90.9584	90.2540	0.82
5	86.6052	85.6033	1017
6	93.6740	83.4056	0.32
7	87.0932	88.0102	−1.05
8	96.0741	97.5013	−1.46
9	75.6738	76.4081	−0.96
10	78.3495	79.6019	−1.59
11	82.9821	82.6709	0.37
12	96.7531	95.6802	1012
13	70.0724	71.2078	−1.59
14	73.1706	72.3419	1.15
15	78.0367	77.1071	1.21
16	76.3853	75.3097	1.43
17	70.1039	70.9325	−1.17
18	88.4359	89.5176	−1.21
19	85.7920	84.6251	1.38
20	83.0978	84.4624	−1.64

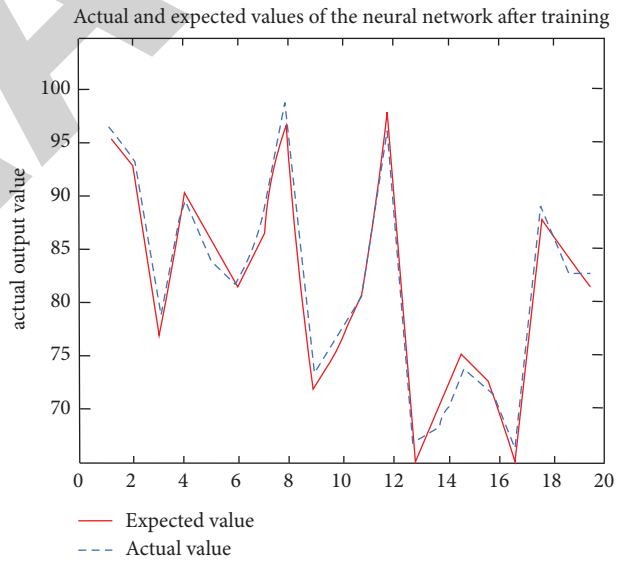

Figure 5: Comparison of the real value and the expected value predicted by the neural net.

There are only some fluctuations between the 9th, 10th, 15th, 16th, 19th, and 20th serial numbers, which are all within an understandable range.

Through the analysis of Table 4 and Figure 5, it can be found that the comparison result between the real value and the expected value is ideal. These evaluation results are equivalent to the results of 21 assessment standards for each grade, and different results are equivalent to their innovative employment skills. Therefore, the research conclusions are analyzed as follows

(1) Graduates with high scores in the evaluation have a solid foundation in the field of computer technology. That is to say, it is mainly reflected in the high-level qualification certificate, knowledge, and technology obtained from the qualification test of national import and export commodity quality inspection and certification personnel of computer science and software professional technology, and participation in national competitions and basic camping of centralized employment projects. The computer professional school is based on solid technical knowledge and the postgraduate training program that participated in the national competition. In the computer major, the most outstanding performance

Table 5: Comparison results of different learning rates.

Study rate	0.010	0.003	0.04	0.05	0.06	0.03	0.06	0.08
Times of training	19	12	20	24	30	37	48	52
Error (e–001)	7.9002	4.0157	6.0043	10.0907	4.2743	10.0887	9.8691	11.235

of its discipline level is that it has obtained a high-level certificate in the application software ability test. But at the same time, according to the data, we collected the proportion of graduates who have obtained the advanced certificate in the national qualification examination for import and export commodity inspection and appraisal personnel of computer science and software professional technology that is very small, which means that the advanced certificate of application ability level test occupies a large part. According to the analysis results of big data collected by the university, the basic knowledge of computer science in the university is relatively solid.

(2) Some college graduates with basic test scores of more than 90 have participated in national competitions and concentrated entrepreneurship training camps. Students' participation in national competitions and entrepreneurship training camps plays a key role in cultivating their awareness of science and technology entrepreneurship. In particular, students who win the domestic competition can not only participate in the domestic competition but also participate in the centralized entrepreneurial training camp when they have a solid knowledge base. The development of concentrated entrepreneurship training camps and the acquisition of projects from entrepreneurship funds are also important manifestations of professional skills. From the comprehensive statistical analysis of the theoretical data and simulation experimental data collected in the college, it can be seen that the actual level of computer majors in Chinese universities needs to be further improved, as shown in Table 5.

(3) Most of the graduates with an assessment score of more than 80 have participated in community practice activities, have entrepreneurial experience, and improved students' innovation and entrepreneurship ability. The time spent in social practice and the entrepreneurial experience of the project have a positive impact on its innovation and entrepreneurial performance. Participating in community practice can help us understand the problems and deficiencies in our daily life and then draw our own views and solutions.

4.4. Countermeasures and Suggestions

4.4.1. Pay Attention to the Role of Competition-Oriented and Coordinate Multiple Participants. Pay attention to the international innovation and entrepreneurship competition and improve personal professional quality. The competition and the reality are interrelated, and the entries are applicable to reality. The key is to establish a scientific and reasonable practical teaching plan and talent training model so that colleges and universities can provide help for entrepreneurs.

4.4.2. Further Consolidated the Basic Knowledge of Computer Science and Highlighted the New Characteristics of Specialized and Integrated Development. Build a professional software development standard system and consolidate the foundation of computer professional software development. Aiming at the software development direction required by modern society and integrating talents of entrepreneurship and innovation, build a standard system for software development direction, and create an enterprise-oriented working environment and operation mode to complete teaching and management. This teaching mode achieves the organic integration of course teaching, experiment, and practical training and cultivates students who are seamlessly connected with society.

4.4.3. Science and Technology Development, Innovation and Entrepreneurship Training, And Strengthening Innovation Policy Guarantee. Select students with independent thinking skills and solid basic knowledge to become training organizations for innovation and entrepreneurship, especially in the field of innovation and entrepreneurship. Colleges and universities should try their best to organize subject innovation teachers and community members to carry out joint training between winter and summer vacation and conduct experimental innovation training in teams so as to learn from work and enhance their own innovation ability.

4.4.4. Enrich Diversified Innovation Practice and Carry Out Social Practice in Multiple Industries. Carry out various forms of entrepreneurial practice. On the one hand, with the help of the college students' network platform, they accumulated entrepreneurial knowledge. Small entrepreneurship projects with students as representatives, to become the agent of college students and enhance their interpersonal communication skills. As a teacher, I can understand the prospects, advantages, and disadvantages of education. At the same time, we can carry out diversified innovative practices with the help of the school platform. In addition, with the help of community resources, family enterprises can innovate together with partners. Family enterprises can carry out innovation practices through family relations and can also independently carry out innovation and

entrepreneurship projects, carry out social practice in multiple industries and cultivate practical skills in multiple industries.

5. Conclusion

According to the difficulties faced by the innovation and entrepreneurship training mode and evaluation system, the innovation and entrepreneurship model is first established with the computer major undergraduate as the training objective. Through the evaluation and empirical results, professional knowledge and skills are found. Participation in national competitions and concentrated entrepreneurship training camps plays a key role in the innovation ability of computing machines. The higher the evaluation score, the more solid the foundation of a computer major. Some students with a score of over 90 in the assessment will have experience in participating in national competitions and strengthening entrepreneurship training camps. Then, it makes an empirical quantitative analysis of the training of innovative talents in computer majors. The results show that the BP neural net model can reasonably evaluate the innovation ability of college students and expand the application value and research fields of the BP neural net. However, this paper still has some shortcomings. The evaluation model of China's innovation and entrepreneurship education established in this paper still has more perfect development space. This paper expects to raise the correlation analysis to the theoretical level and carry out the evaluation research on each dimension in the later stage.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest.

References

[1] H. Eki, M. Zgenel, and E. Metlilo, "The effect of motivation of success of university students on personal-professional competence: mediation role of lifelong learning tendency," *International Journal of Evaluation and Research in Education*, vol. 9, no. 3, pp. 583–593, 2020.

[2] H. S. Jung and S. Park, "A study on the deep learning based prediction of production demand by using LSTM under the state of data sparsity," *IOP Conference Series: Materials Science and Engineering*, vol. 926, no. 1, Article ID 012031, 2020.

[3] C. Watson, N. Cooper, D. N. Palacio, M. Kevin, and P. Denys, "A systematic literature review on the use of deep learning in software engineering research," 2020, https://arxiv.org/abs/2009.06520.

[4] A. . Majid, "Evaluation on students' service design concepts using the principles of service innovation and design process," *Test Engineering and Management*, vol. 82, pp. 9638–9646, 2020.

[5] K. Lee, S. Yi, S. Hyun, and C. Kim, "Review on the recent welding research with application of CNN-based deep learning Part II: model evaluation and visualizations," *Journal of Welding and Joining*, vol. 39, no. 1, pp. 20–26, 2021.

[6] K. Aggarwal, S. K. Singh, and M. Chopra, "Deep learning in robotics for strengthening industry 4.0.: opportunities, challenges and future directions," *Robotics and AI for Cybersecurity and Critical Infrastructure in Smart Cities*, vol. 80, pp. 34311–34317, Springer, Berlin, Germany, 2022.

[7] E. Godaert, K. Aesaert, J. Voogt, and B. Johan van, "Assessment of Students' Digital Competences in Primary School: A Systematic review," *Education and Information Technologies*, vol. 27, pp. 1–59, 2022.

[8] I. Tomory, "Work-in-Progress: evaluation in Hungarian education: evaluation knowledge and reflections on engineering and technical teacher students," in *Proceedings of the International Conference on Interactive Collaborative Learning*, Dresden, Germany, 2022.

[9] M. López, B. A. Natalia, S. Sáenz, and J. Luis, "A service-learning experience applied in corporate identity design of newly created companies," in *Proceedings of the International Conference on Design, Simulation, Manufacturing: the Innovation Exchange*, Rome, Italy, 2022.

[10] B. Putra, R. Amirudin, and B. Marhaenanto, "The evaluation of deep learning using convolutional neural net (CNN) approach for identifying arabica and robusta coffee plants," *Journal of Biosystems Engineering*, vol. 47, pp. 118–129, 2022.

[11] M. Bohori, R. Rosiqoh, H. Hikmat, and R. Efendi, "Evaluation of physics learning on momentum and impulse topic of the senior high school students," *Journal of Physics: Conference Series*, vol. 1521, no. 2, Article ID 022050, 2020.

[12] M. Munawaroh and N. S. Setyani, "The effect of problem based learning (pbl) model on student learning motivation inproducts, creative and entrepreneurship subject in Eleventh Grade of SMK PGRI 1 Jombang," *Journal of Physics: Conference Series*, vol. 1464, Article ID 012021, 2020.

[13] Y. H. Jiang, W. B. Jiang, and H. L. Ni, "Research on cost-benefit evaluation model of social security project based on fuzzy entropy," *Advanced Hybrid Information Processing*, Springer, vol. 11, no. 3, , pp. 38–42, Berlin, Germany, 2022.

[14] J. Saremi, Z. Zarei-Behjani, and E. Vojoudi, "Evaluation of viability and cell attachment of human endometrial stem cells on electrospun silk scaffolds prepared under different degumming conditions and solvents," *Regenerative Engineering and Translational Medicine*, vol. 35, no. 4, pp. 95–97, 2022.

[15] J. Klamert-Schmid, S. Zangl, and M. Lackner, "The phenomenon of 'opportunity recognition' among engineering students," in *Proceedings of the International Conference on Interactive Collaborative Learning*, Hilton Park Vienna, Austria, 2022.

[16] J. A. Rising, C. Taylor, M. C. Ives, and R. E. T. Wardb, "Challenges and innovations in the economic evaluation of the risks of climate change," *Ecological Economics*, vol. 197, no. 3, pp. 119–127, 2022.

[17] M. Effendi, Zainuddin, and M. S. Ahmad, "The influence of the Kirkpatrick evaluation level on the quality of learning systems in UPBJJ-UT Ternate students: empirical study on open university," *International Journal of Research in Business and Social Science*, vol. 11, 2022.

[18] Y. Li, "Innovative strategies of primary school calligraphy education model under the background of big data," *Innovative Computing*, Springer, vol. 8, no. 1, , pp. 1–8, Berlin, Germany, 2022.

[19] A. Brown and M. Rich, "Researching student learning on business management degree courses: the problem of

evaluation," in *Proceedings of the Eighteenth European Conference on Research Methodology for Business and Management Studies*, Aveiro, Portugal, 2020.

[20] X. Sun and Y. Zhang, "An improved BP neural network algorithm for the evaluation system of innovation and entrepreneurship education in colleges and universities," *Mobile Information Systems*, vol. 2022, Article ID 1007538, 10 pages, 2022.

[21] X Zhao, C. Lin, S. Wang, and H. Zhao, "Evaluation of women's entrepreneurship education based on bp neural network," *Scientific Programming*, vol. 2022, Article ID 5761363, 10 pages, 2022.