

Retraction

Retracted: Teaching Reform of Undergraduate Courses in Colleges and Universities Based on Machine Learning and Improved SVM Algorithm

Security and Communication Networks

Received 1 August 2023; Accepted 1 August 2023; Published 2 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This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] Y. Zhou, "Teaching Reform of Undergraduate Courses in Colleges and Universities Based on Machine Learning and Improved SVM Algorithm," *Security and Communication Networks*, vol. 2022, Article ID 8348568, 11 pages, 2022.

Research Article

Teaching Reform of Undergraduate Courses in Colleges and Universities Based on Machine Learning and Improved SVM Algorithm

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Received 23 July 2022; Revised 6 September 2022; Accepted 17 September 2022; Published 30 September 2022

Academic Editor: Tarni Mandal

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In order to deeply understand the current situation, problems, and satisfaction of undergraduate education courses in Contemporary Colleges and universities, and further improve the teaching level of professional courses, first, this paper makes an in-depth investigation on the teaching status and satisfaction of undergraduate education majors in two colleges and universities. The results show that the teaching and satisfaction of undergraduate education majors are at a medium level ($m = 2.27$). On this basis, combined with the existing problems, combined with the SVM parameter optimization algorithm of improved machine learning and particle swarm optimization algorithm, this paper puts forward the optimization strategy of undergraduate education curriculum teaching reform.

1. Introduction

In recent years, with the continuous deepening of China's education system reform, China's education has achieved rapid innovative development, coupled with the gradual opening of teacher education, the enrollment scale of normal undergraduate colleges has been expanding, the talent market has been in oversupply for a time, and the employment rate of graduates majoring in undergraduate education has declined to a certain extent [1]. This has also triggered concerns about the development prospects of the Pedagogy Major, and even the lack of information about the training quality of professionals. With the introduction and implementation of the teaching quality standards of educational disciplines and the certification standards of normal education majors in China, higher requirements are put forward for the training and development of undergraduate education professionals, and the training of higher quality talents must rely on the reform and innovation of professional curriculum teaching, and provide support for professional talent training through curriculum teaching innovation reform and system guarantee [2]. On the basis of

this, in accordance with the current situation and problems of undergraduate professional curriculum reform, the direction of reform and innovation of the undergraduate professional curriculum of colleges and universities is being discussed.

2. Literature Review

Through the analysis of the system engineering characteristics of educational technology discipline itself, some scholars put forward the engineering idea of cultivating undergraduate professionals in educational technology, and analyzed the feasibility of engineering idea in cultivating undergraduate professionals in educational technology [3]. Some scholars have proposed that the idea of engineer training can solve the problem of the disconnection between education and technology in the training of undergraduate professionals in educational technology. Under the guidance of this thought, educational technology undergraduate professionals should first locate different types of talents from different levels and clarify their training objectives according to the actual situation of each school [4];

Secondly, we should design and develop the curriculum plan according to the basic requirements of engineers, and evaluate the level of students majoring in educational technology based on the basic ability requirements of engineers.

Some scholars believe that the general goal of educational technology professional training according to the scope determined by the definition of educational technology act 1994 is questionable. By analyzing the professional ability of undergraduate students in educational technology and the professional direction of undergraduate education, he summarized and proposed that the training objectives of undergraduate level should be: Applied talents with the foundation of educational theory and modern information technology, the ability of teaching process design and the ability of teaching resource development, can be engaged in teaching and training design, teaching resource design and development, modern teaching system management, and their employment is oriented to all kinds of schools and training institutions, educational technology industry, educational technology professional institutions, and educational departments.

Some scholars pointed out that in the process of cultivating students majoring in educational technology in Colleges and universities, there is a lack of research and training on students' curriculum teaching technology. In the process of educational technology specialty construction, the construction of specialty discipline characteristics is ignored [5]. In view of this phenomenon, the author, on the basis of investigation and research, puts forward that the ability and quality of educational technology professionals in the information age should be: technological culture is the mainstream, constructivism is the main body, information processing is the key, the basic requirements of networking of educational platform and diversification of teaching means [6]. The training objectives of educational technology professionals should reflect the times, foresight, and flexibility. It is proposed that the overall characteristics of the ability and quality of educational technology professionals in the information age are: through the systematic learning of educational technology majors, they have a solid foundation of educational theory, a deep foundation of literature and art, exquisite media technology skills, and skilled teaching design ability. And according to social needs and the requirements of basic knowledge of the discipline, students majoring in educational technology should have humanistic theory literacy, media technology quality and applied research innovation ability. On this basis, the author establishes the logical framework of the corresponding ability system quality.

3. Relevant Technical Algorithms

3.1. Text Feature Weight Algorithm Based on Machine Learning. Inverse Document Frequency (TF-IDF) is one of the most commonly used weighting algorithms and is often used to measure the importance of words in a text or words in a text. Its calculation formula is shown in equation (1).

$$tfidf_{i,j} = tf_{i,j} \times idf_i. \quad (1)$$

Here, idf_i represents the probability that the feature appears in the entire set of texts, and $tf_{i,j}$ represents the number of times a word appears in the text, which is used to measure the ability of the text to represent its content [7]. For a word in the text, its meaning is expressed by formula given in equation (2).

$$tf_{i,j} = \frac{n_{i,j}}{\sum_k n_{k,j}}, \quad (2)$$

where $n_{i,j}$ represents the number of times a specified feature item appears in the text, and the frequency of reverse documents of a specified feature item is related to the number of all texts and the number of documents containing the feature item, then the IDF calculation formula of the feature item is shown in equation (3).

$$idf_i = \log \frac{|D|}{|\{j: t_i \in d_j\}|}, \quad (3)$$

where $|D|$ represents the total number of texts in corpus D , $|\{j: t_i \in d_j\}|$ represents the number of texts containing the word, t_i represents the i -th feature item, and d_j represents the j -th text. If the word does not exist in the corpus, the denominator will be zero, so the following formula is used to calculate the denominator of idf, as shown in formula given by equation (4).

$$1 + |\{d \in D: t \in d\}|, \quad (4)$$

where D represents all text sets, d represents a certain type of text, and t represents the characteristic items of the text. A weighted TF-IDF can be calculated from high-frequency words in a specific text and low-frequency words in all scripts. Therefore, it appears that the weighting algorithm of TF-IDF prefers to filter out fine words and retain words that play an important role in expressing content [8].

3.2. Improved Particle Swarm Optimization Algorithm for SVM Parameters. Suppose there are some special points in the training samples, which makes the training samples linearly inseparable. The linear inseparability here means that some training sample points cannot meet the constraint conditions, that is, the function interval is greater than or equal to 1. If these special points are cleared, the remaining training samples can be linearly separable and maximize the classification interval. Here, the maximization of classification interval is called soft interval maximization [9]. For this linear non-separable case, it is necessary to introduce the relaxation variable ξ_i ($\xi_i \geq 0$) to each training sample point under the original linear separable condition, and the constraint condition can be transformed into equation (5).

$$y_i(wx_i + b) - 1 + \xi_i \geq 0, \quad i = 1, 2, \dots, N. \quad (5)$$

At this time, the optimal classification hyperplane is given by equation (6).

$$\min \frac{1}{2} \|w\|^2 + C \sum_{i=1}^N \xi_i, \quad (6)$$

where C is the penalty factor, and the greater C is, the greater the penalty for misclassified samples is; The smaller the C , the smaller the penalty for misclassification samples. C makes the classification interval as large as possible and the misclassification sample as small as possible, which plays a role of adjustment coefficient [10]. Using Lagrange method to solve, the corresponding Lagrange function is given by equation (7).

$$L(w, b, \alpha, \beta) = \frac{1}{2} \|w\|^2 + C \sum_{i=1}^N \xi_i - \sum_{i=1}^N \alpha_i (y_i (w x_i + b) - 1 + \xi_i) - \sum_{i=1}^N \beta_i \xi_i, \quad (7)$$

where α_i and β_i are Lagrange multipliers; Three optimization conditions can be obtained by solving differential equations for w, b , and ξ_i , respectively, as shown in equation (8).

$$\begin{aligned} \nabla_w L(w, b, \alpha, \beta) &= w - \sum_{i=1}^N y_i x_i \alpha_i = 0, \\ \nabla_b L(w, b, \alpha, \beta) &= - \sum_{i=1}^N y_i \alpha_i = 0, \\ \nabla_{\xi_i} L(w, b, \alpha, \beta) &= C - \alpha_i - \beta_i = 0. \end{aligned} \quad (8)$$

That is, see equations (9) to (11).

$$w = \sum_{i=1}^N y_i x_i \alpha_i, \quad (9)$$

$$\sum_{i=1}^N y_i \alpha_i = 0, \quad (10)$$

$$C = \alpha_i + \beta_i. \quad (11)$$

Substituting equations (9) to (11) into $L(w, b, \alpha, \beta)$, the corresponding dual form of the problem can be obtained, as shown in equation (12).

$$\min_{\alpha} \frac{1}{2} \sum_{i=1}^N \sum_{j=1}^N y_i y_j \alpha_i \alpha_j - \sum_{i=1}^N \alpha_i. \quad (12)$$

The corresponding constraints are given by equation (13).

$$\sum_{i=1}^N \alpha_i y_i = 0, \quad 0 \leq \alpha_i \leq C, \quad i = 1, 2, \dots, N. \quad (13)$$

By solving the above problems, the optimization function can be obtained as shown in equation (14).

$$f(x) = \text{sgn} \left(\sum_{i=1}^N \alpha_i^* y_i (x_i \cdot x) + b^* \right). \quad (14)$$

Due to the global search and parallelism of genetic algorithms, genetic algorithms and support vector machines can be combined to optimize SVM parameters. First, the Gaussian kernel function is used as the kernel function in the SVM model, and the SVM parameters are encoded by real number coding. The fitness value of each individual in the population is calculated according to the fitness function, and then the genetic algorithm operation is carried out on the initial population to generate the next generation sub-population. After many repetitions, the best person in the group will be accepted. Finally, public opinion decides to obtain the best SVM parameters. Particle Swarm Optimization Algorithm is a particle based optimization tool. At the beginning of the iteration, the particle optimization algorithm randomly generates groups of elements model solutions. Public sector products improve performance by assessing the most pressing and global problems and ultimately finding global solutions. Figure 1 shows the flow algorithm of SVM parameter optimization based on particle-by-particle optimization (PSO-SVM) [11].

4. Investigation on the Current Situation of Undergraduate Pedagogy Curriculum Teaching and System Guarantee

4.1. Questionnaire Design and Reliability Analysis. This study mainly investigates the current situation of undergraduate pedagogy curriculum teaching and system guarantee. It is designed from four aspects: training objectives, curriculum system, teaching methods, and system guarantee [12]. The design of the questionnaire is mainly based on the satisfaction and implementation effect of undergraduate pedagogy professional curriculum teaching and system guarantee [13]. The questionnaire questions are entered in the form of negative integral according to the scoring principle of the 5-point Likert scale. According to the degree of compliance, "very satisfied" to "very dissatisfied," they are recorded as 1-5 points, respectively. After many discussions and modifications with teachers, the questionnaire was distributed to 2016, 2017, 2018, and 2019 undergraduate students and some graduates of Education Majors in two colleges and universities through the questionnaire star in December 2019. The questionnaire was open for 14 days, and a total of 246 questionnaires were recovered, 242 of which were valid, with an effective rate of 98.4%. See Table 1 for details.

Reliability refers to the reliability of measurement data. Cronbach's alpha is a commonly used reliability index, and its coefficient value is positively correlated with the reliability value. In basic research, the acceptable reliability value should not be less than 0.80 [14]. When the coefficient value is less than 0.35, it must be rejected. As can be seen from Table 2, Cronbach's alpha value is 0.839, higher than 0.80, indicating that all items in the questionnaire have high reliability and the data results are credible.

Applicability refers to the degree to which a measure of quality is applied to research points. A KMO value indicates the level of eligibility for analysis, and a KMO value greater than 0.9 is appropriate for analysis; 0.8-0.9 means

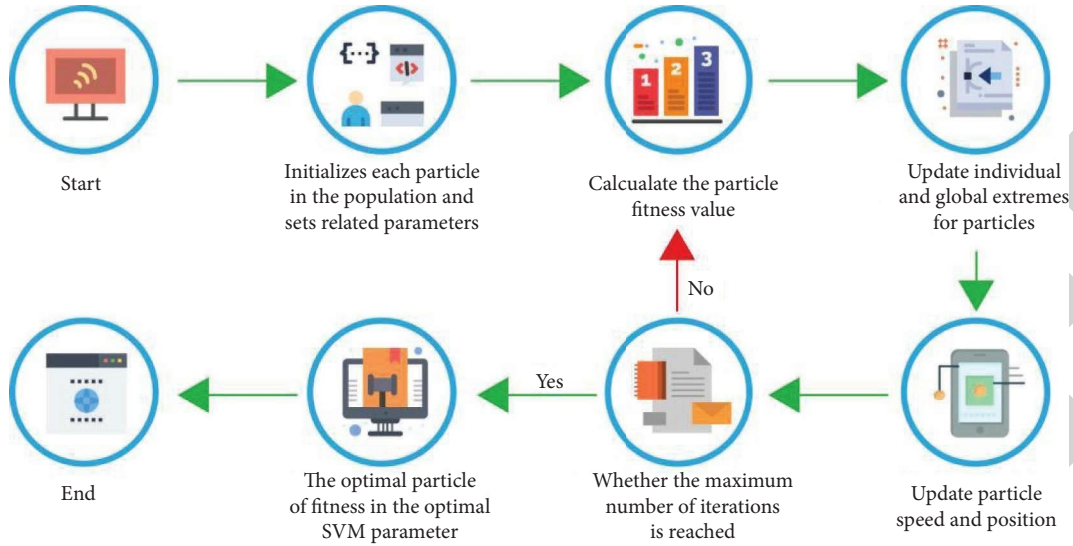


FIGURE 1: Flow chart of PSO-SVM algorithm.

TABLE 1: Distribution of basic information of questionnaire survey.

Project	Option	Frequency	Effective percentage (%)	Total
Gender	Male	36	14.88	242
	Female	206	85.12	
Grade	Freshman	56	23.14	242
	Sophomore	57	23.55	
	Junior	36	14.88	
	Senior	33	13.64	
	Graduate	60	24.79	
School	S University	140	57.85	242
	L University	102	42.15	
Intention to choose a major	First choice	128	52.89	242
	Passive adjustment or others	114	47.11	

TABLE 2: Overall reliability statistics of the questionnaire.

Cronbach's alpha	Number of terms
0.839	123

appropriate; 0.7–0.8 is appropriate; 0.6–0.7 show; 0.5–0.6 means very poor; Below 0.45, it indicates no fit at all. According to the inspection standard, $KMO = 0.723 > 0.5$, Sig value is $0.000 < 0.05$, the value is good, it is based on the test of sphericity, that is, the material can be on the questionnaire this is good and follows the count analysis [15]. As shown in Table 3:

4.2. Analysis of Investigation Results

4.2.1. A Survey on the Satisfaction of Undergraduate Pedagogy Curriculum Teaching and System Guarantee. Students' overall satisfaction with the major of pedagogy affects their study of professional courses and future employment direction. According to the survey, for "undergraduate pedagogy professional curriculum teaching and system guarantee all aspects of overall satisfaction?" The

TABLE 3: Overall validity statistics of the questionnaire.

KMO measurement of sampling adequacy	0.723	
Approximate chi square	29841.726	
Bartlett's sphericity test	df	7503
	Sig.	0.000

average value of this problem is 2.27, and the median value is 2, that is, most students' attitude is mainly concentrated on the level of "satisfaction." It can be seen from Figure 2 that the overall attitude of most students is mainly focused on "satisfaction" and "general," of which 80.91% of students' attitude toward talent training mode is mainly focused on "satisfaction" and "general" [16]; 79.70% of the students' attitudes toward the curriculum mainly focus on "satisfaction" and "general"; 82.43% of students' attitudes toward teaching methods mainly focus on "satisfaction" and "general"; 79.40% of students' attitudes toward the level of teachers are mainly "satisfied" and "very satisfied"; 77.27% of the students' attitudes toward the teaching management system mainly focus on "satisfaction" and "general"; 80.90% of the students' attitude toward the learning service system mainly focuses on "satisfaction" and "general." From this

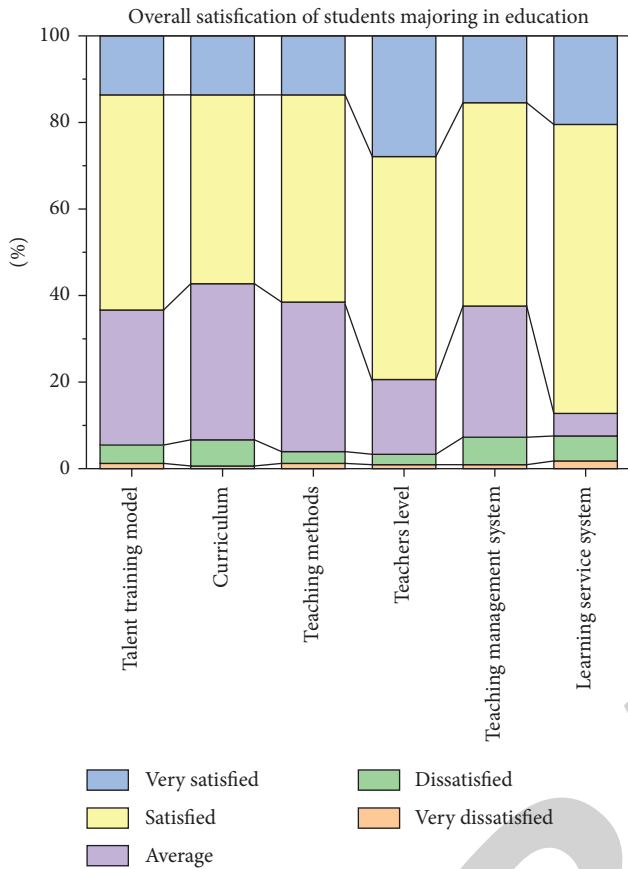


FIGURE 2: Overall satisfaction of students majoring in Pedagogy.

data, we can see that the overall satisfaction of students with their majors is high. Except for the level of teachers, there is still room for improvement in other aspects. See Figure 2 and Tables 4–9 for details.

4.2.2. *Investigation on the Learning Situation of Undergraduate Students Majoring in Pedagogy.* Table 10 shows that the relative coefficient of the student’s ability to learn and the start of the class was 0.253, indicating a critical level of 0.01. This shows that there is a correlation between students’ understanding of learning and when they start college [17].

As shown in Figure 3, compared with high school, students with passive learning have a higher sense of learning acquisition during college, accounting for 16.13%, almost 32.26%, and 51.61% have a lower sense of learning acquisition; Sometimes, compared with high school students, students who take the initiative to study have a higher sense of learning acquisition during college, accounting for 25.59%, almost 47.39%, and 27.01% have a lower sense of learning acquisition [18]; Compared with high school, 45.61% of the students who always study actively have a higher sense of learning gain during college, almost 36.84% of them, and 17.54% of them have a lower sense of learning gain. It can be seen that the learning initiative of undergraduate education students is positively related to the sense

of learning acquisition. The more active students are, the higher their sense of learning acquisition is.

4.2.3. *The Curriculum System of Undergraduate Education.* As shown in Figure 4, 71.21% of undergraduates believe that the curriculum goal of Pedagogy Major is to form modern educational theory literacy, 75.76% believe that it is to cultivate educational scientific research ability, 88.18% believe that it is to master solid professional knowledge and skilled education and teaching skills [19], 56.06% believe that it is to cultivate innovation and entrepreneurship ability, 65.15% believe that it is to cultivate noble professional ethics and professional emotions, and 2.73% believe that it is to cultivate other abilities [20]. It can be seen that students majoring in pedagogy pay more attention to the acquisition of professional knowledge and the formation of education and teaching skills, such as the ability and quality that can directly help future employment, followed by the ability of educational scientific research and the quality of educational theory, and finally pay attention to noble professional ethics, professional emotion and innovation and entrepreneurship ability. Compared with other goals, undergraduates ignore the formation of innovation and entrepreneurship ability.

In the survey on whether they are satisfied with the curriculum of professional compulsory courses in undergraduate pedagogy, 45 people expressed great satisfaction, accounting for 13.64% of the total number; 144 people expressed satisfaction, accounting for 43.64% of the total. In addition, the reasons for dissatisfied students are as shown in Figure 5. Half of the students think that the number of courses is too large and complex; 31.21% thought the course content was too repetitive; 34.24% believed that the knowledge of course content was outdated and divorced from reality; More than half of the students, 67.27%, thought that the curriculum did not consider students’ interests and needs; 46.36% believed that the curriculum did not pay attention to the cultivation of students’ ability; 35.76% thought that the teaching method of teachers was single; 22.12% thought the course assessment method was unreasonable; 1.52% thought there were other problems. For example, some students thought that many courses offered were irrelevant to the major of pedagogy [21].

4.2.4. *A Survey of Practical Courses of Undergraduate Education.* Practical courses refer to the courses or contents closely related to practice that are specially set up or explained in professional basic courses, professional courses and other courses. As shown in Figure 6, most students generally believe that the practice time is shorter, accounting for 50.61% compared with those who believe that the practice time is longer; 70% think that there are too few forms of practice and lack of selectivity; 43.64% believed that the practice content was single; 42.73% believed that the practice process lacked autonomy; 39.39% believed that practical assessment was a mere formality; 26.67% thought that the practice effect was not good and the harvest was not great; 1.52% believed that there were other problems. It can

TABLE 4: Satisfaction of talent training mode.

	Frequency	Percentage	Effective percentage	Cumulative percentage
Valid	Very satisfied	30	12.4	12.4
	Satisfied	126	52.0	64.4
	Commonly	72	29.6	29.8
	Dissatisfied	10	4.0	4.1
	Very dissatisfied	4	1.7	1.7
	Total	242	99.7	100.0

TABLE 5: Curriculum satisfaction.

	Frequency	Percentage	Effective percentage	Cumulative percentage
Valid	Very satisfied	33	13.6	13.6
	Satisfied	110	45.3	45.5
	Commonly	85	35.0	35.1
	Dissatisfied	12	5.0	5.0
	Very dissatisfied	2	0.8	0.8
	Total	242	99.7	100.0

TABLE 6: Satisfaction of teaching methods.

	Frequency	Percentage	Effective percentage	Cumulative percentage
Valid	Very satisfied	29	11.8	11.9
	Satisfied	122	50.3	50.4
	Commonly	81	34.4	33.5
	Dissatisfied	6	2.5	2.5
	Very dissatisfied	4	1.7	1.7
	Total	242	99.7	100.0

TABLE 7: Satisfaction of teachers' level.

	Frequency	Percentage	Effective percentage	Cumulative percentage
Valid	Very satisfied	72	29.7	29.8
	Satisfied	125	51.5	51.6
	Commonly	38	17.6	15.7
	Dissatisfied	4	1.7	1.7
	Very dissatisfied	3	1.2	1.2
	Total	242	99.7	100.0

TABLE 8: Satisfaction of teaching management system.

	Frequency	Percentage	Effective percentage	Cumulative percentage
Valid	Very satisfied	36	15.9	14.9
	Satisfied	119	46.1	49.2
	Commonly	73	30.0	30.1
	Dissatisfied	13	5.3	5.4
	Very dissatisfied	1	0.4	0.4
	Total	242	99.7	100.0

be seen that at present, students have great opinions on practical courses of pedagogy [22].

It can be seen from Figure 7 that the combination of theory and practice of teachers majoring in pedagogy is relatively close or general, accounting for 43.03% and 41.21%, respectively.

As shown in Figure 8, 1.6% of the junior and senior students and graduates of pedagogy have improved their research ability in educational science during their internship; 59.2% of the students have improved their teaching practice ability; 8.8% of the students have improved the working ability of the head teacher; 20% of the students have

TABLE 9: Satisfaction of learning service system.

	Frequency	Percentage	Effective percentage	Cumulative percentage
Valid	Very satisfied	31	12.8	12.8
	Satisfied	111	45.7	58.7
	Commonly	87	35.8	94.6
	Dissatisfied	9	3.7	98.3
	Very dissatisfied	4	1.7	100.0
	Total	242	99.7	100.0

TABLE 10: Correlation between learning initiative and sense of acquisition of students majoring in Pedagogy.

		Learning initiative	Sense of learning gain
Learning initiative	Pearson correlation	1	0.253**
	Significance (bilateral)		0.000
	N	242	242
Sense of learning gain	Pearson correlation	0.253**	
	Significance (bilateral)	0.000	
	N	242	242

**indicates significant correlation at level 01 (bilateral).

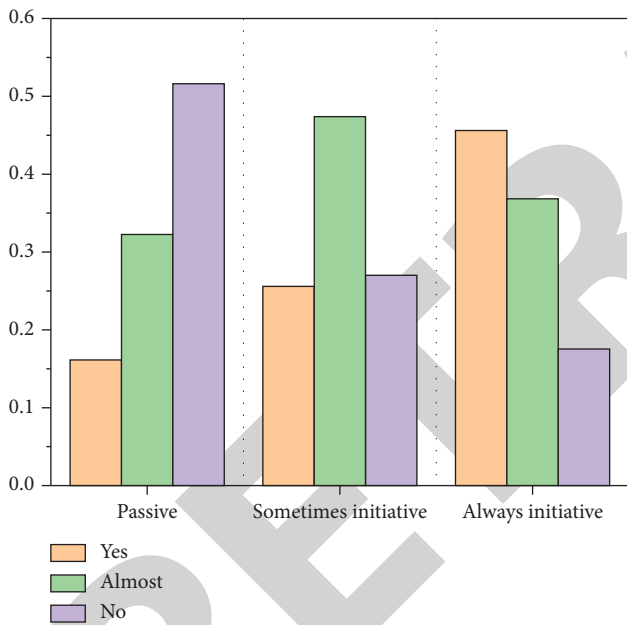
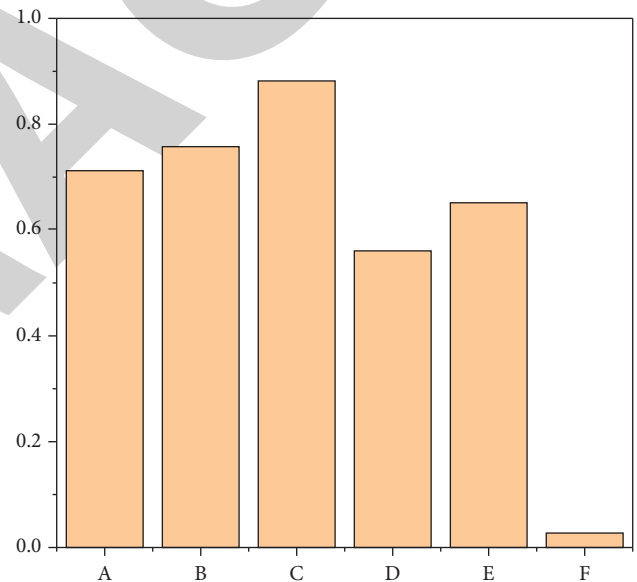


FIGURE 3: Cross-analysis of learning acquisition and learning initiative.

improved their vocational adaptability; 6.4% of the students improved their social interaction ability; 4% of the students have improved the working ability of office secretaries [23]. 53.6% of the junior and senior students and graduates of pedagogy who want to improve their abilities before or after internship want to improve their teaching practice ability; 16% of students want to improve their vocational adaptability; 15.2% of the students want to improve the ability of educational science research; 8% of the students want to improve the working ability of the head teacher; 6.4% of the students want to improve their social interaction ability; 0.8% of students want to improve the working ability of office secretaries. It can be seen that the actual ability of



- A Form the theoretical literacy of modern education
- B Develop the ability of educational science research
- C Master solid knowledge and skilled teaching skills
- D Cultivate innovation and entrepreneurship
- E Develop a high professional ethics
- F Other

FIGURE 4: Students' understanding of curriculum objectives in Pedagogy.

undergraduate education majors in practice is roughly the same as the ability they want to improve, and the practice effect is good on the whole. It should be noted that the current internship activities make it difficult for students to cultivate their educational scientific research ability in internship.

4.2.5. *Summary of Basic Information.* The basic information of the questionnaire: 36 boys and 206 girls; Among them,

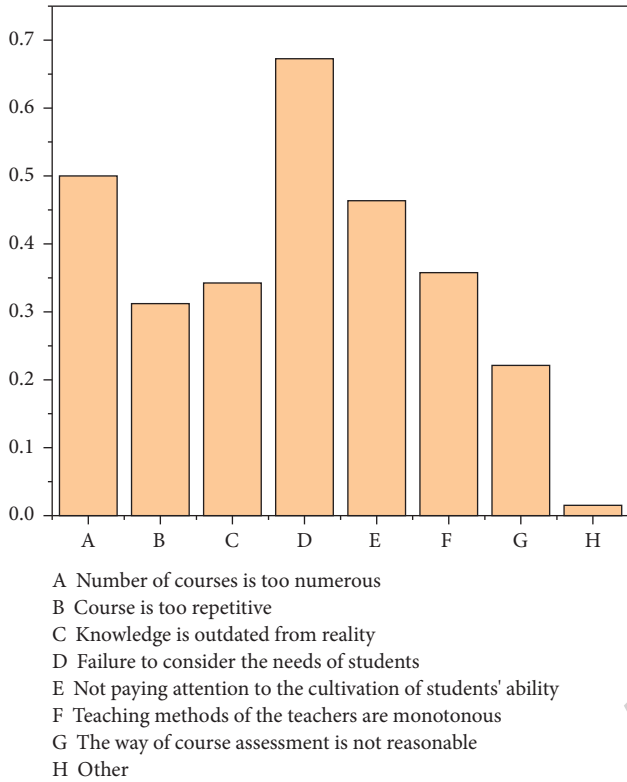


FIGURE 5: Problems that students think exist in professional compulsory courses.

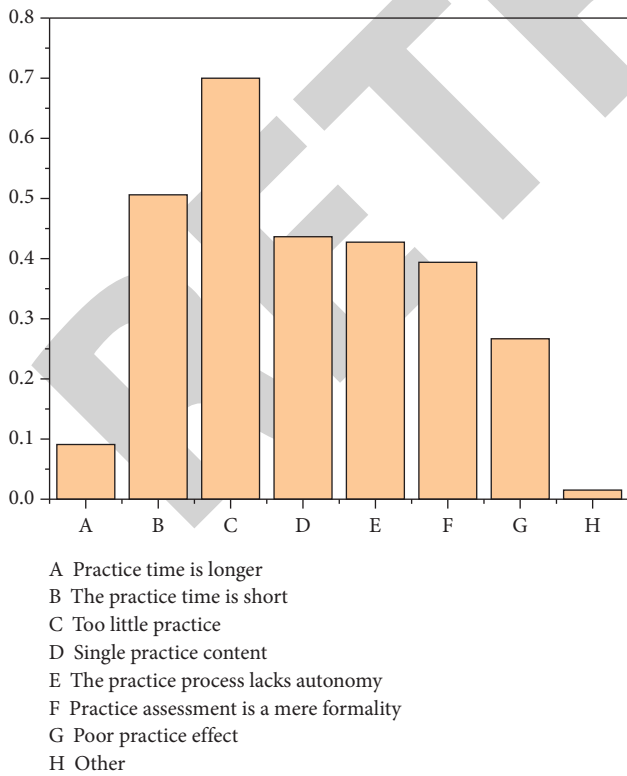


FIGURE 6: Problems that students think exist in practical courses of Pedagogy.

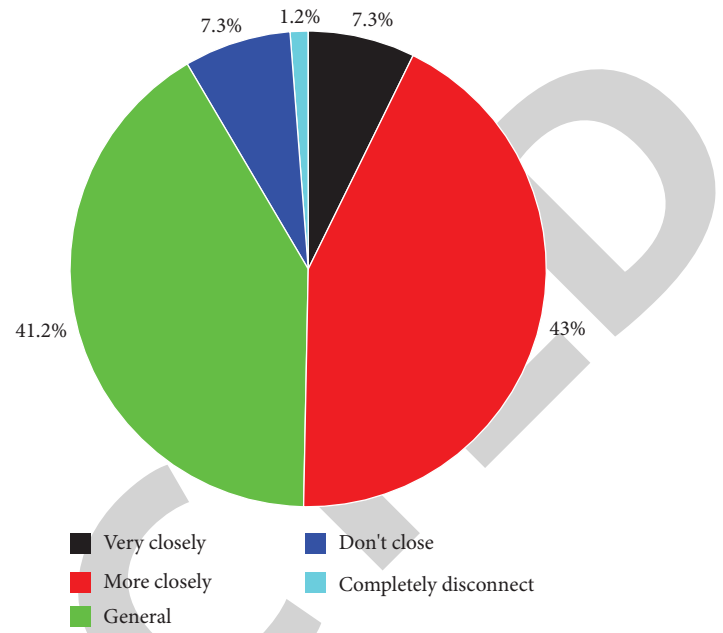


FIGURE 7: The combination of theory and practice of teachers majoring in undergraduate Pedagogy.

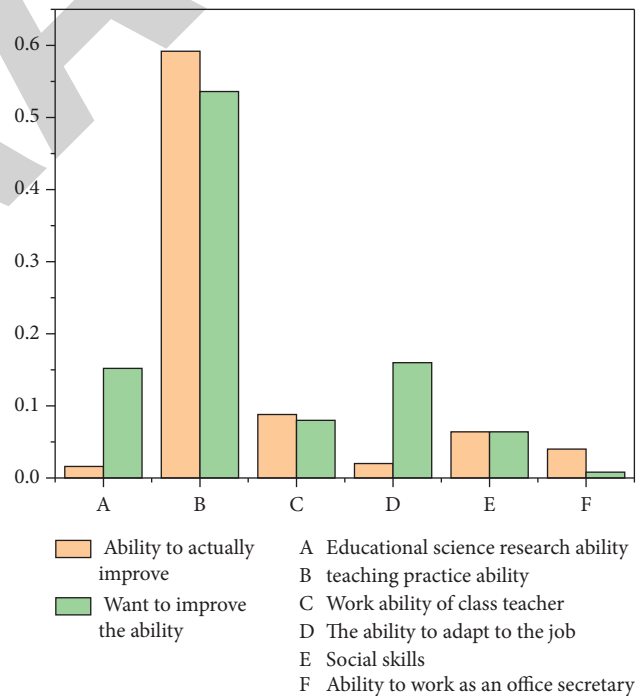


FIGURE 8: Junior and senior students of pedagogy and graduates' understanding of practice effect.

there are 56 in 2019, 57 in 2018, 36 in 2017, 33 in 2016 and 60 graduates; Among the respondents, 140 were from s University and 102 from L University; In the intention of choosing a major, 128 students volunteered first, and 114 students volunteered passively or in other situations. In this study, the degree of satisfaction with the teaching and system guarantee of undergraduate education courses is at the

upper middle level ($m = 2.27$). Therefore, the satisfaction of undergraduate pedagogy curriculum teaching and system guarantee is a positive trend as a whole [24].

4.3. Optimization of Teaching Reform and System Guarantee of Undergraduate Pedagogy Courses

4.3.1. Based on the Characteristics of Pedagogy, Set the Training Objectives of Pedagogy Professionals. First, the talent training objectives of pedagogy cannot be divorced from the policy basis. With the promulgation of the national standard of pedagogical teaching quality, colleges and universities should keep up with the standard one after another, and begin to revise the training plan of pedagogical professionals in the new year, so as to formulate talent training objectives scientifically and reasonably [25]. At the same time, the certificate of expertise in the training of trainers provides guidance in the process of job development. Therefore, the college should focus on the training of skills, science and medical qualifications in accordance with national standards, the college from home college. The training objectives should conform to the development process of the higher education system with Chinese characteristics.

Second, we should flexibly locate the training objectives according to our own school type, school education level, and the education and teaching resources owned by colleges and universities, so as to avoid the phenomenon that the training objectives of pedagogical professionals are too high or too low. Colleges and universities should examine the graduation trends and employment directions of pedagogy majors in the past five years, understand the types of talents currently needed in the talent market, reasonably formulate training objectives, and promote the development of local education.

Third, we should strengthen the popularization of talent training programs, enrich the understanding of pedagogy majors on pedagogy, improve the guidance system for the use of talent training programs for pedagogy majors, and set up relevant lectures for the use of talent training programs after freshmen enter the school, so that the talent training programs play a substantive role in improving the quality of talent training for pedagogy majors.

4.3.2. Appropriately Increase the Practicality of Compulsory Courses of Pedagogy. In the national standard for teaching quality of pedagogy, 16 compulsory courses for pedagogy majors are arranged, and colleges and universities are given room for free adjustment. It can be seen from the content of professional courses that the professional courses of pedagogy major focus on educational theory and educational laws. Although colleges and universities have divided the class hours of theoretical courses and practical courses in detail in the arrangement of compulsory courses of Pedagogy Major, due to the analysis of the problems in the previous chapter, it can be seen that the compulsory courses of Pedagogy Major do not do well in the combination of theory and practice. In order to improve students' interest in

learning and promote the integration of educational theory and practice, the following measures are proposed:

First, the content arrangement of compulsory courses for pedagogy majors can appropriately reduce theoretical class hours and increase practical class hours. It can establish a one-to-one correspondence between theoretical courses and practical courses, and divide each course into several modules according to the teaching content. Each module contains the corresponding theory and practice, so as to study in sections and shorten the learning cycle.

Second, teachers of compulsory courses of pedagogy should reasonably use case teaching methods and other teaching means. Theoretical knowledge is often more abstract, and direct teaching is not conducive to the understanding of most students. Teachers can appropriately adopt the case study method in the teaching process. Based on appropriate cases, they can guide students to analyze and actively discuss cases through theory, deepen students' understanding of theoretical knowledge, and promote students' in-depth study of the course.

4.3.3. Adjust and Enrich Elective Courses of Pedagogy.

Elective courses for pedagogy majors mean that students can freely choose to study pedagogy related courses according to certain rules. In view of the change from "elective" to "compulsory," first of all, the college should reasonably adjust the proportion of compulsory courses and elective courses, and set up compulsory courses for pedagogy majors according to the requirements of national standards and professional characteristics, so as to avoid the change from "elective" to "compulsory." Taking the education talent training program of s University as an example, the curriculum structure and content of education in 2019 have been adjusted more scientifically and timely. The curriculum structure of undergraduate Pedagogy Major has been adjusted to appropriately reduce the credits and hours of study. Among them, the credits of discipline professional courses account for 54% of the total credits, and the credits of teacher education courses account for 22%. Secondly, we should improve the elective system and enrich professional elective courses, give students free choice, and consider students' interests and needs. In view of the insufficient total number of elective courses, the reason is that the graduate students majoring in pedagogy are mainly engaged in discipline teaching. Therefore, whether for the sake of conformity psychology or employment planning, there are a large number of students who want to obtain teacher qualification certificates during the undergraduate period, and the undergraduate students majoring in pedagogy are more willing to enrich discipline knowledge. On the one hand, the college can add elective courses of relevant subject knowledge in primary and secondary schools, on the other hand, it can add or improve the inter college joint training system to ensure the richness of undergraduate education courses.

4.3.4. Timely Change Educational Concepts and Flexibly Use Modern Teaching Methods. Teachers majoring in pedagogy should change their educational concepts in time, respond to

the reform of teaching methods in the “Internet +” era, and actively update teaching methods. First, for the compulsory courses of pedagogy, the theoretical courses account for a large proportion. Teachers can appropriately adopt the teaching method of case study, strengthen the combination of theory and practice, and reasonably arrange the classroom teaching. On the one hand, teachers can increase the flexibility of classroom teaching, on the other hand, teachers can timely update the teaching content, bring the international foreword education trends into the classroom, and broaden students’ international vision; Second, for the elective courses of pedagogy, taking into account the students’ awareness of autonomous learning, teachers can adopt a mixed teaching method, give the classroom initiative to students, increase the awareness of team cooperation and team communication, and teachers play the role of guidance and confusion solving; Third, for practical courses of pedagogy, the college can contact the current employment situation.

As a part of the implementation of practical courses, we should add an innovative practical activity platform to actively innovate teaching methods from the college and teachers. In short, the educational concept of pedagogical teachers should change from teachers’ teaching to students’ learning, have equal dialogue with students, promote students’ autonomous learning and active exploration, and give play to their subjective initiative.

Innovate classroom teaching methods, combine online education with offline education, and learn from hybrid teaching methods to promote the cultivation of students’ core literacy in the teaching of pedagogy courses. Online education has realized the development direction of famous teachers entering schools across the country, and the nationalization and even internationalization of teacher-student exchanges. It pays more attention to the teaching of authoritative knowledge. At the same time, the development of 5g and artificial intelligence in the future will further enrich the technicality and progressiveness of online education courses. It is worth noting that online education and offline education are not mutually abandoned. The knowledge transfer of online education and the preaching and dispelling of offline education should be complementary and mutually promoting. On the one hand, students can obtain the required knowledge through online education, and students’ learning has achieved large scale. Through the same online course, teachers and students from different countries, regions and educational backgrounds can communicate together to express their views, students achieve personalized development, and teachers constantly update teaching knowledge; On the other hand, through offline education courses provide an academic exchange platform for teachers and students of pedagogy, realize the mutual benefit of teaching and learning, and promote the development of pedagogy to the world-class education level.

5. Conclusion

This paper is based on the training objectives of educational technology professionals, the ability needs of society for

educational technology undergraduate talents, and the analysis of the training ability of educational technology undergraduate practical courses. Based on the investigation and analysis of the teaching situation of practical courses, combined with humanistic theory, constructivism theory and “Tower of experience” theory, this paper constructs the teaching implementation mode of undergraduate practical courses of educational technology. This paper studies the theoretical basis and policy basis of undergraduate pedagogy curriculum teaching reform and system guarantee, and makes an in-depth study on the satisfaction and current situation of the selected cases of undergraduate pedagogy curriculum teaching and system guarantee, so as to provide feasible optimization strategies for the sustainable development of undergraduate pedagogy in China. Conclusion: first, the training of pedagogical professionals should highlight professional characteristics, make stakeholders participate in the formulation of professional training objectives, and take curriculum teaching as a carrier to ensure the training quality of undergraduate pedagogical professionals; Second, enrich and improve the curriculum system, ensure the effectiveness of practical courses and appropriately enhance the status of innovation and entrepreneurship practical activities in the overall curriculum; Third, in the era of “Internet +,” we should use modern teaching methods to innovate the teaching method of combining online education and offline education; Fourth, improve the process assessment system and add an inter college joint training system to ensure the effectiveness of undergraduate pedagogy courses. Finally, clarify the responsibilities of teachers in the tutorial system, improve and promote the system of Professor research room, and truly play the role of learning service system guarantee.

Data Availability

No data were used to support this study.

Conflicts of Interest

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

Acknowledgments

This work was supported by University-Industry Collaborative Education Program (202102197002).

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