

Retraction

Retracted: The Teaching Capacity of Industry Characteristic Counselors Based on Data Fusion and Random Forest Algorithm

Wireless Communications and Mobile Computing

Received 15 November 2022; Accepted 15 November 2022; Published 27 November 2022

Copyright © 2022 Wireless Communications and Mobile Computing. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Wireless Communications and Mobile Computing has retracted the article titled “The Teaching Capacity of Industry Characteristic Counselors Based on Data Fusion and Random Forest Algorithm” [1] due to concerns that the peer review process has been compromised.

Following an investigation conducted by the Hindawi Research Integrity team [2], significant concerns were identified with the peer reviewers assigned to this article; the investigation has concluded that the peer review process was compromised. We therefore can no longer trust the peer review process and the article is being retracted with the agreement of the Chief Editor.

References

- [1] L. Ji, Y. Sun, M. Sun, and M. Kong, “The Teaching Capacity of Industry Characteristic Counselors Based on Data Fusion and Random Forest Algorithm,” *Wireless Communications and Mobile Computing*, vol. 2022, Article ID 6328826, 13 pages, 2022.
- [2] L. Ferguson, “Advancing Research Integrity Collaboratively and with Vigour,” 2022, <https://www.hindawi.com/post/advancing-research-integrity-collaboratively-and-vigour/>.

Research Article

The Teaching Capacity of Industry Characteristic Counselors Based on Data Fusion and Random Forest Algorithm

Li Ji , Yingmin Sun, Meimei Sun, and Miaomiao Kong

School of Management, Shaanxi Institute of International Trade&Commerce, Xi'an, 712046 Shaanxi, China

Correspondence should be addressed to Li Ji; 20141066@csiic.edu.cn

Received 25 February 2022; Revised 23 April 2022; Accepted 29 April 2022; Published 11 June 2022

Academic Editor: Rashid A Saeed

Copyright © 2022 Li Ji et al. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

The good development of industry-specific universities (hereinafter referred to as characteristic universities) promotes the optimal allocation of national university resources and moreover promotes the development of China's education, while counselors, as important teaching and research staff, have a very close connection with the development level of the school, directly reflecting the quality and level of education of the school and determining the height of its educational development. Talent is the first productive forces, counselors as teaching talents, and is essential to the construction of industry specialty universities. The evaluation index system of teaching ability of counselors can effectively guide counselors toward the path of specialization, scientifically realize career planning, and maximize the achievement of the general goal of the characteristic school they are in. This article aims to assess the teaching capacity of counselors and targeted training capabilities. The counselor's ability is reflected in the teaching of teaching, completing teaching objectives and cultivates student's hobbies. In this paper, through investigating the cultivation methods of different industries, the cultivation of counselor's ability is to assess consensus and establish multilevel teachers' teaching capacity cultivation system. The results show that the system can effectively improve the teaching capacity of young teachers and increase 20% of student's satisfaction; however, it also shows that the professional competence of counselors still needs to be improved.

1. Introduction

As the foundation of the industry, special college is not only facilitating the optimization of education resources in colleges and universities but also promoting scientific and technological development. As a member of the university, the counselor has an irreplaceable role in the development of colleges and universities. The ability of the counselor not only directly reflects the ability of the school, but also plays an important role in the future development of students. Establishing assessment indicators of the counselors can better help the counselors understand their own and find out their own ability. However, the current colleges and universities have high emphasis on counselors. The academic community does not use unified counselor's ability to evaluate indicators, which has continuously hindered the development of counselors. It is a major loss to students and even schools. Based on the special working characteris-

tics of the counselor, how to build a simplified counselor's ability evaluation system is the focus of future work.

For the training of teachers, they have never stopped related research at home and abroad. Vandenberg is a certified high school curriculum lecturer and has a strong interest in technology research in the teaching. He is very confident that some of the ability to diagnose some very difficult problems in the engine control system is very confident. He expects to maintain this advantage and develop in the automotive industry and enhance your own feature [1]. Durden R is a flight instructor; he has formed a systematic teaching plan to guide pilots to carry out flight tests; helping students to master straight lines and horizontal flights, turning, climbing, falling, slow flight, stall, and take off and landing; and guiding students to repeated exercises, until the students show its ability to execute it within an acceptable parameter [2]. OK explores the imperial expectations of teachers to make them autonomous in the EFL teachers' training

environment. The mixing method is used, first of all, according to the student's answer to the two open problems expected in the classroom and extracurricular teachers, five points of Li Kete questionnaire. Second, 10 high-grade students participating in the school experience course are required to provide written opinions on the industry's own teacher expectations and classify them as a set of topics. According to the results of the study, participants reflect positive tendencies [3]. Phillips' research investigates the characteristics of adult students' classroom teaching and learning environment in adult students. The survey results show that adult students seem to prefer to have knowledge and adult learners; teachers with application experience in their teaching; and teachers with clear communication, fairness, and understanding [4]. Han Research Examination Sports Guidelines The role of class teachers who should assist and cooperate. Through the investigation of 306 sports instructor participating in the training course in G Education. It is concluded that all sports instructor expects the role of the class teacher and the male sports instructor is higher than that of women [5]. Sierra highly praised Sun certified programmers and developers Java 2 learning guide. He believes that the guide meets high-quality education enthusiasm and desire so that the course is full of fun, simplifying, understanding obstacles, helping students benefit from them [6]. Kharouf research Micro-Clock test assessment of qualified microscopic surgeon skills. Nine students who participated in Microsygraduated Diploma have taken nine tests during the course to measure their progress and assess their master's degree and execution speed. It is concluded that there were no significant differences in stability, instrument operations, and execution time. When the student is tested for microcopy, the action has significant improvement [7]. M. Amini and others believe that some of the problems that students encounter in school are usually caused by their young age or unfamiliarity with the campus, and they do not know how to feel the unknown in this campus atmosphere. Therefore, choosing experienced tutors to guide and help students can effectively solve the problems they face [8]. These studies have their own uniqueness, but there is no good discussion on how to assess and enhance the ability of counselors.

In this paper, for the assessment and training of counselors, this paper launched a survey and investigated different groups of counselors in many colleges and universities, analyzing relevant data, and found the counselor capabilities. By introducing the random forest algorithm, it is possible to integrate multiple data and effectively match the data, which can better help the counselor to improve the cognitive ability of the client.

2. Principle Method

2.1. Data Fusion. Data fusion is also known as information fusion or multisensor data fusion [9] and refers to the multi-class data or information from different sources, different locations through organic combination, comprehensive analysis, and dominance to achieve a more comprehensive and accurate, multilevel consistency description or perception. The multisensor data fusion is operated by the intention of the true human brain, then removes redundant

information in the obtained information according to some rule, and finally uses some way to combine the preprocessed information so that the target object can be obtained. The data fusion process is shown in Figure 1.

During the data fusion, there is a need for a different integration strategy to take different environments for the analysis of many uncertain factors and differences in decision mechanisms and sensor information. Data layer fusion, feature layer fusion, and decision layer fusion are three major characteristics of data fusion [10].

The data layer fusion structure model is shown in Figure 2. After the data collected by the plurality of sensors, the data layer is directly fused after a simple preprocess, and then the fused data has been subsequently reached to the object. The fusion method is directly effective, and a large amount of raw data is used, the fusion performance and accuracy are more good, but the data is considered very large, resulting in poor system time and poor real time.

In the feature layer fusion [11], the fusion structure block diagram is shown in Figure 3, which is preprocessed in the data acquired by the individual sensors and then performs feature extraction of different source data, comprehensive analysis, and organic combination of all extracted features. The characteristics of a set of organic customs are finally formed for subsequent classification recognition. Feature layer fusion is good for data compression performance, and for communication bandwidth requirements, it is relaxed to real-time processing data, but due to the relative analysis of the relationship between the features, it is prone to data loss during processing, resulting in a decrease in identification rate.

The structural framework of the decision-level fusion [12], is shown in Figure 4. The decision tree ensemble is a more advanced fusion technique. As the name suggests, the decision tree ensemble refers to the result of the interaction of multiple sensors. When judging the results of multiple sensors, it is necessary to improve the data of each sensor first and then fuse the recognition results to improve the accuracy and robustness of the system so that the results obtained are more accurate. Decision-making fusion compared to other fusion systems has many advantages, strong anti-interference ability, high flexibility, low algorithm complexity, and whether sensor homogeneous or not can be combined to apply and many areas.

2.2. Random Forest Algorithm. The random forest algorithm [13] is a method of evaluating variable utility by means of decision tree. The process is shown in Figure 5.

The mathematics description of the random forest algorithm is as follows.

Assuming that it is a large classifier composed of M decision trees, the set D_x is a single vector with the same direction, and S is a test sample, then $\{b(S, D_x), x = 1, \dots\}$ represents a different value when each tree takes the value of X .

The basic steps for random forest algorithms are as follows:

Step 1: The bootstrap sampling method is a computer simulation method that deals with statistics that can happen in practice, but require large samples to find out. It uses bagging (bootstrap sampling) to pick up M samples, forming M training samples

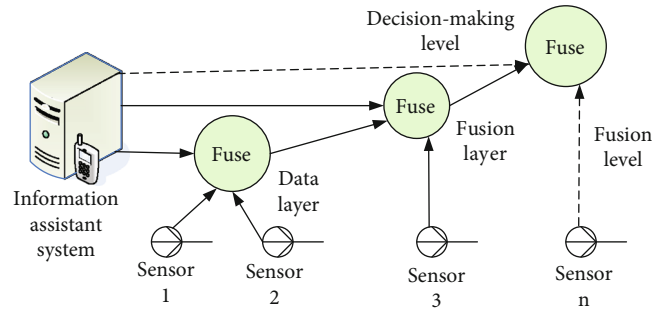


FIGURE 1: Basic principle of data fusion.

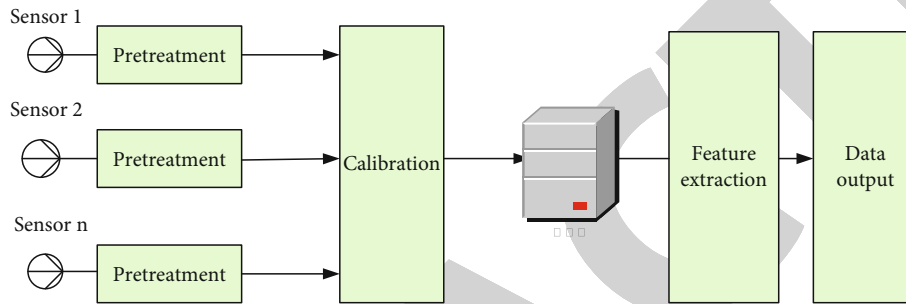


FIGURE 2: Data layer fusion structure model.

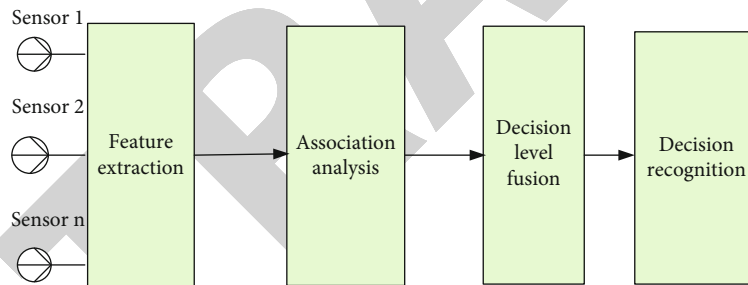


FIGURE 3: Construction of feature layer fusion model.

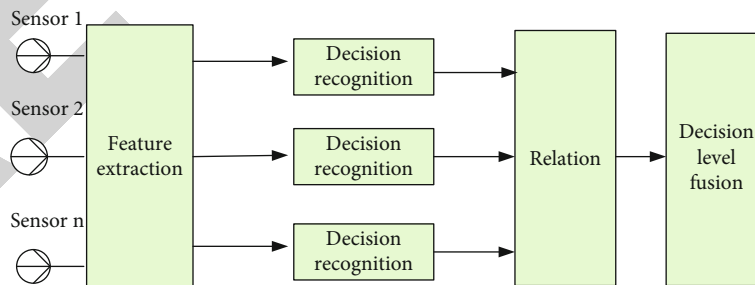


FIGURE 4: Construction of decision level fusion model.

Step 2: Classification and regression tree is to select a dimensional vector in each node as a classification standard for nodes, finally forming a tree

Step 3: A backpack is a collection data type that does not support removing elements from it—its purpose is to help use cases collect elements and iterate through all the collected elements. It uses bag data to perform error testing, and the results of the test make a simple vote.

Step 1: The bootstrap sampling method is a computer simulation method that deals with statistics that can happen in practice, but require large samples to find out. It uses bagging (bootstrap sampling) to pick up M samples, forming M training samples

$$B(z) = \arg_n^{\max} \sum_{r=1}^x J(b_r(z) = q) \quad (1)$$

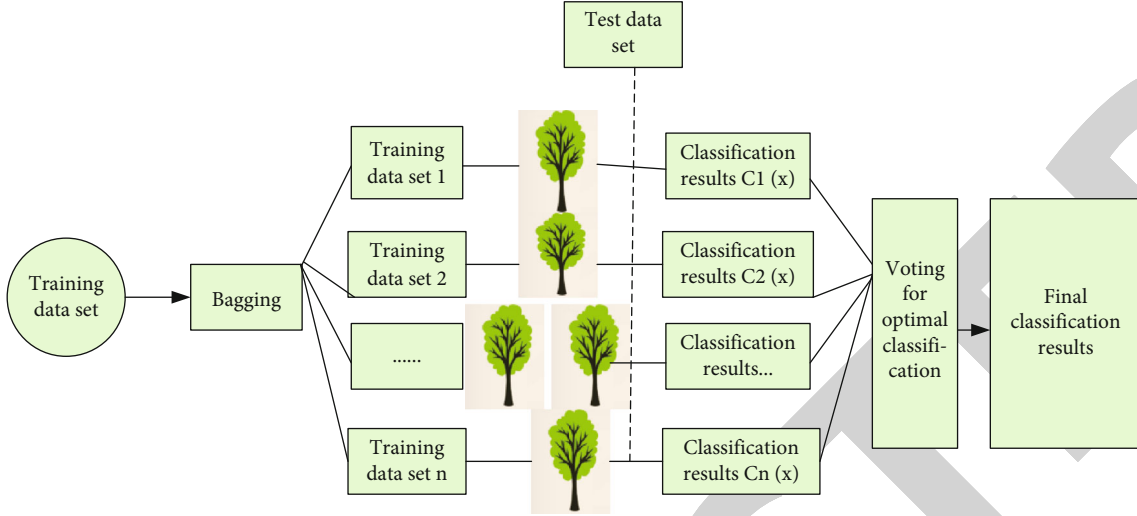


FIGURE 5: Random forest algorithm model.

The value function is represented by $\arg()$, and the indicator function represents the number of samples classified into Q classes, which can be represented by $J()$.

The marginal function of random forest is calculated as follows:

$$mg(S, Q) = \arg_r J(b_r(S) = Q) - \max_{p \neq Q} \arg_r J(b_r(S) = p) \quad (2)$$

Among them, the value of $mg(S, Q)$ is positively correlated with the correctness of the classification.

According to Formula (3), the generalization error W can be derived:

$$W = P_{S,Q}(mg(S, Q) | 0) \quad (3)$$

It can be seen from formula (3) that when the number of decision trees is large, W will gradually transform into formula (4) with the increase of m .

$$P_{S,Q}(P_r J(b_r(S) = Q) - \max_{p \neq Q} P_r J(b_r(S) = p) | 0) \quad (4)$$

From this, the marginal function of the random forest can be defined [14] as

$$mj(S, Q) = P_r J(b_r(S) = Q) - \max_{p \neq Q} P_r J(b_r(S) = p) \quad (5)$$

The strength of the classifier [15] is defined as

$$L = E_{S,Q} mj(S, Q) \quad (6)$$

Assuming $s \geq 0$, according to Chebyshev's inequality, from Equations (4) to (6), we can get

$$W \leq \frac{\text{var}(mj)}{a^2} \quad (7)$$

The $\text{var}(mj)$ required by inequality (7) has the form as

$$\text{var}(mj) = \bar{\rho}(E_r sd(r))^2 \quad (8)$$

$$\text{var}(mj) \leq \bar{\rho}(E_r \text{var}(r)) \quad (9)$$

$$E_r \text{var}(r) \leq E_r (E_{S,Q} mg(r, S, Q))^2 - a^2 \quad (10)$$

$$E_r \text{var}(r) \leq 1 - a^2 \quad (11)$$

From Equations (7), (8), (9), (10), and (11), the upper bound of the random forest W can be expressed as Equation (12), where ρ is the mean value of the correlation coefficient and a is the classification strength of the tree:

$$W \leq \frac{\bar{\rho}(1 - a^2)}{a^2} \quad (12)$$

Therefore, it can be seen that the classification ability of the random forest algorithm mainly depends on the classification ability of a single decision tree and the correlation between each decision tree. At the same time, this formula can also show that the random forest algorithm is not prone to overfitting to the data.

The random forest algorithm has powerful advantages. Its criteria for measuring the importance of variables can be divided into two categories [16]; one is the Gini importance value, and the other is the replacement importance value. We can measure how each feature reduces the segmented impurities (selecting the feature with the maximum reduction for the internal nodes). For each feature, we can collect the average how to reduce impurities. The average of all trees in the forest is a measure of feature importance. Displacement-based importance can be used to overcome the shortcomings of the default feature importance calculated using the average impurity reduction. This article uses Gini importance to measure the importance of variables. The following describes the calculation formula of the Gini importance value. Suppose that there are I

variables $A_1, A_2, A_3, A_4,$ and A_i . According to the Gini index, the score statistic of the variable A_i is denoted as $VIA_i^{(Gini)}$. The calculation formula of Gini index is

$$GI_x = \sum_{h=1}^h \widehat{p}_{xh} (1 - \widehat{p}_{xh}) \quad (13)$$

where h is the number of self-service sample set categories and \widehat{p}_{xh} is the probability that node x belongs to the h -th category. When $h = 2$, the Gini index of node x is as follows:

$$GI_x = 2\widehat{p}_x (1 - \widehat{p}_x) \quad (14)$$

where \widehat{p}_{xh} represents the estimated value of the probability of the sample at node x . The amount of change in the Gini index of the variable A_i before and after the branch of node x is

$$VIA_{ix}^{(Gini)} = GI_x - GI_t - GI_u \quad (15)$$

In Formula (15), GI_t and GI_u , respectively, represent the Gini index of the two new nodes split by x .

If the variable A_i appears N times in the f -th tree, then the importance of the variable A_i in the f -th tree is defined as

$$VIA_{fi}^{(Gini)} = \sum_{n=1}^N VIA_{in}^{(Gini)} \quad (16)$$

The Gini importance of the variable A_i in the random forest is defined as

$$VIA_i^{(Gini)} = \frac{1}{z} \sum_{f=1}^z VIA_{fi}^{(Gini)} \quad (17)$$

In Formula (17), z is the number of decision trees in the random forest.

2.3. Decision Tree Algorithm. The decision tree algorithm [17] is a tree structure to represent the classification and induction operation algorithm. The decision tree structure includes nodes and directed edges. A decision tree contains a root node, a number of internal nodes, and a number of leaf nodes.

The key to constructing a decision tree is to determine the optimal attributes. Generally speaking, the optimal attributes can be constructed by methods such as information gain, Gini coefficient, and information gain ratio [18]. Assuming that the sample set is B , and S_n is the n th attribute in B , the calculation formula of information gain can be simply expressed:

$$Gain(S_n) = Entropy(B) - \sum_{x=1}^r \frac{|B_x|}{|B|} \times Entropy(B_x) \quad (18)$$

In Formula (18), $|B_x|/|B|$ is the number of samples in the sample set, and the entropy can be calculated as shown in

$$Entropy(b) = - \sum_{x=1}^t freq(A_k, B) \times \log_2(freq(A_k, B)) \quad (19)$$

In Formula (19), the number of categories can be expressed as t , and the category frequency of A_k can be expressed as $freq(A_k, B)$. The C4.5 algorithm uses the information gain ratio to select attribute metrics [19, 20]. Its definition is shown in Formulas (20) and (21):

$$GainRatio(S_n) = \frac{Gain(S_n)}{Split(S_n)} \quad (20)$$

$$Split(S_n) = \sum_{x=1}^r \frac{|B_x|}{|B|} \times \log_2 \left(\frac{|B_x|}{|B|} \right) \quad (21)$$

2.4. Instructor Teaching Ability. Counselors are indispensable talents in colleges and universities, and they are also the main force of school management [20]. Counselors are the people who have the closest contact with students and directly carry out various tasks for students. They should also consciously strengthen student education and help students grow. The work of counselors is to carry out student ideological and political education under the leadership of party organizations and management departments at all levels, in accordance with the training objectives, combining the laws of student ideological development, and coordinating with various forces. The main tasks are as follows: One is to help students master the correct theories and methods, guide them to establish the correct three views, and firm the correct political direction. The second is to educate students on party history and politics. The third is to do a good job of ideological and political education in daily study, internship, physical exercise, and after-school life during the whole process from enrollment to graduation. The fourth is to evaluate students' thoughts and reward and punish students in accordance with the relevant rules and regulations of the school. The fifth is to do a good job in the construction of grassroots party branches and guide the work of the Communist Youth League grassroots league organizations (the youth league branch, class committee, etc.). Counselors in colleges and universities can be assigned by grade or major and can be selected from full-time party and government cadres and full-time teachers of ideological and political theory courses or from teachers and cadres with a certain level of political theory, good political quality, and strong organizational skills.

Since its inception, the college counselor system has been widely implemented in ordinary colleges and universities across the country. Whether it is ordinary undergraduate colleges or higher vocational colleges, comprehensive universities, or colleges, counselors have been set up according to the requirements of relevant national documents the job responsibilities of counselors are to carry out the ideological and political education of students as the main force.

The professional competence of college counselors is a summary of the work competence of counselors, which is embodied in the ability to use basic knowledge and professional knowledge to carry out daily ideological and political education and affairs management of students. The

classification of the professional abilities of counselors from different perspectives has different results. This article mainly summarizes the most important professional abilities that counselors must possess from the perspective of the job function requirements of counselors into the following items.

Educational guidance ability [21] is mainly embodied in the mastery of basic information and ideological dynamics of students, helping students to establish the correct three outlooks, and effectively helping college students to solve the specific problems in the process of growing talents, healthy living, and employment. The ability to organize and build is mainly reflected in the careful guidance of the class to carry out various tasks; the development of education activities in dormitory civilization, health, and safety; and the creation of a dormitory cultural atmosphere.

Affairs management ability [22] means that counselors follow procedural norms, use professional knowledge, and adopt scientific methods to carry out subsidized education, mental health education, career development and innovation and entrepreneurship employment guidance, second classroom activities, rewards and punishments, etc.

Crisis management ability means that counselors do a good job in the prevention and guidance of various emergencies, resolve, and deal with relevant contradictions and safety hazards involving students in a timely manner in accordance with relevant regulations and handling procedures; in case of emergencies, carry out effective emergency response and public relations work; do a good job in the aftermath of the crisis.

Teaching and research ability [23] includes the ability to carry out various special lectures; the ability to participate in the first and second classroom teaching work; and the ability to carry out theoretical research and project application in combination with work.

3. Questionnaire Survey and Analysis of Instructors' Teaching Ability

3.1. Status Quo of Instructor's Teaching Ability. Based on the professional competence structure system of college counselors, this article conducts a questionnaire survey on counselors, students, and administrative personnel of relevant departments. The survey content is based on the abilities that counselors should have and their actual work effectiveness. At the same time, conduct interviews with managers to scientifically evaluate the current problems in the training of the professional ability of the counselor team from the perspective of managers.

This survey is divided into four parts. The first part is the evaluation survey of counselors' personal professional ability development. All first-line counselors in colleges and universities (except those who are not on duty or do not directly bring students for various reasons, such as secondments and assignments) are selected to participate in the questionnaire survey. The second part is a survey of students' evaluation of the current situation of counselors' professional ability. The scope of the survey is determined based on the standard of 20 students for each counselor. There are 1,600 people in total, accounting for about 12% of the full-time

students in the school. The third part is the evaluation of the professional ability of the counselors by the administrative staff of the relevant departments. The 28 staff in the school's student work office (excluding department leaders), ministries, and other major departments who have direct contact with the counselors are selected to conduct a questionnaire survey. The coverage rate is 100%. The fourth part is an interview conducted by the management department on the evaluation of the professional competence level of counselors. All 16 managers of the counselor system were selected to conduct one-to-one interviews, with a sample coverage rate of 100%. For the handling of the questionnaire, the Likert 5-point scale method was used [24]: 1 = completely inconsistent; 2 = relatively inconsistent; 3 = normal; 4 = relatively in line; and 5 = completely in line. Among them, completely nonconforming and relatively conforming constitute a negative ratio, and relatively conforming and completely conforming to a positive ratio. In order to ensure that the survey data is comprehensive and credible, some counselors are tested in advance, and imperfect topic designs are eliminated to ensure that the survey results can reflect the true situation. First of all, the reliability and validity of the test involving various professional abilities of counselors are analyzed. Usually the value of the Cronbach alpha coefficient is between 0 and 1. If the alpha coefficient does not exceed 0.6, the internal consistency of the scale is generally considered to be insufficient; when it reaches 0.7-0.8, the scale is considered to be of good reliability, and when it reaches 0.8-0.9, the scale is considered to be of very good reliability. Through the analysis, it is found that the Cronbach a coefficient is between 0.795 and 0.829 and the internal consistency of the scale is relatively high. Its KMO value is 0.812, and the validity is relatively high, which shows that the internal validity of this questionnaire is good and the design is scientific and reasonable.

In this survey, a total of 80 questionnaires (self-evaluation forms) were distributed to counselors, and 80 were returned, with a recovery rate of 100%, of which 80 were valid questionnaires, with an effective recovery rate of 100%. A total of 1600 survey questionnaires (student forms) were distributed to students, and 1540 were recovered, with a recovery rate of 96.25%, of which 1510 were valid questionnaires, with an effective recovery rate of 94.38%.

At the same time, a total of 28 questionnaires were distributed to the administrative staff of relevant departments, 28 were recovered, and the recovery rate was 100%, of which 28 were valid questionnaires, and the effective recovery rate was 100%.

Based on the statistical analysis results of the three parts of the questionnaire and the content of the interview, a summary analysis of the current situation of the professional ability of the counselor team is carried out, and the situation is as follows.

As shown in Figure 6, there are 80 first-line counselors, of which male counselors account for 37.5%, female counselors account for 62.5%, and the number of female counselors is 1.67 times that of male counselors. There are 45 people under 30 years old, accounting for 56.25% of the total; 33 people aged 31-40, accounting for 41.25% of the

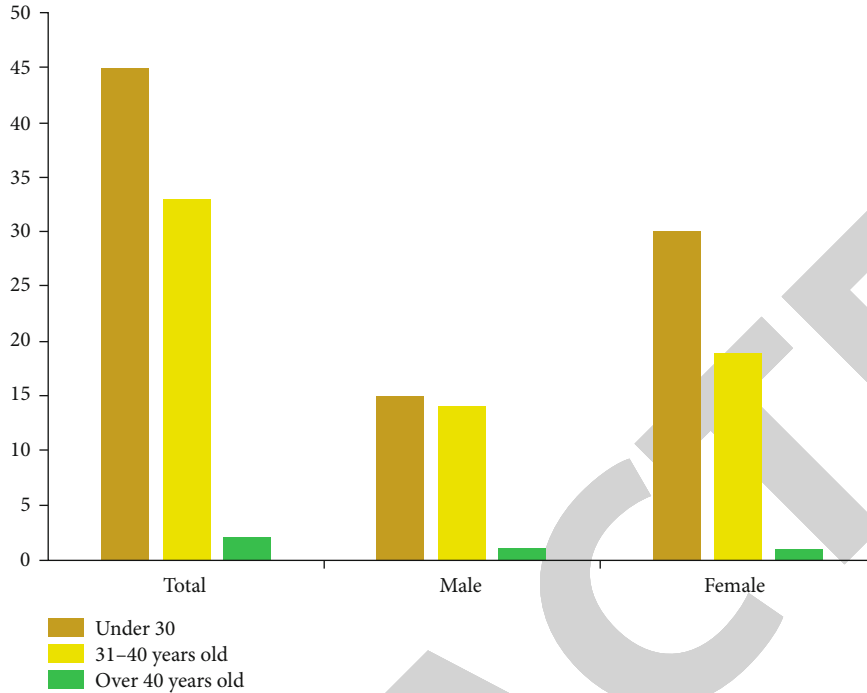


FIGURE 6: Counselor's age and gender composition.

total; and 2 people over 40 years old, accounting for 2.5% of the total. From the perspective of age structure, the overall population is biased.

Most of the counselors surveyed have a master's degree, which is probably related to the requirement of colleges and universities for counselors to be at least a master's degree in recent years. There are also several undergraduates, but the proportion is very small, and there are few PhDs. In terms of majors, most of them are majors in science and engineering and only 20% majors in education, literature, history, and philosophy. In addition, most of the professional titles of counselors are teaching assistants and lecturers, a small number of them are associate professors, and almost there are no professors. This is also related to the current college professional title evaluation system and counselor training mechanism. There is no academic environment, no research status of the subject, and even more ratings. It is harder, on the one hand, that this is the inevitable consequence of the youth of the counselor team; on the other hand, it also reflects the worrying career prospects of counselors and the difficulty of promotion and evaluation of professional titles.

As shown in Table 1, there are only 35 students who meet the "one counselor for every 200 students" stipulated by the Ministry of Education's Higher Education Department, accounting for 43.75% of the total number. More than half of the counselors are overloaded with work. There are a total of 520 students who have been taught by counselors for less than one year. In addition to freshmen, there are about two hundred students whose counselors have led classes for less than one year, and they have been replaced. The number of counselors who have been in the same class for more than 3 years is relatively small, accounting for less than 10% of the total number of counselors. Judging from the

TABLE 1: Number of students led by counselor.

Quantity	under100	100-150	151-200	200-300	Above 300
Number	3	20	12	45	10
Proportion	3.5%	21%	14%	50.5%	11%

number of counselors' replacements, nearly half of the students' classes have changed counselors. Among them, 23.45% have been replaced twice or more.

As shown in Figure 7, the overall satisfaction of counselors with their own work is relatively high. Nearly three-quarters of the survey respondents indicated that they are "basically satisfied" and "very satisfied"; among the students' evaluations of counselors, although more than 60% Of survey respondents expressed "basically satisfied" and "very satisfied," but 15% of students expressed "dissatisfied," the highest among several groups. In the evaluation of counselors and students, the difference in satisfaction rate is statistically significant ($P = 0.019$). The overall evaluation of counselors' work is the highest, with more than 80% choosing "basically satisfied" or above, and the dissatisfaction rate is also the lowest, only 3.70%. In the evaluation of counselors and administrative staff, the difference in satisfaction rate was not statistically significant ($P = 0.474 > 0.05$), and in the evaluation of counselors and managers, the difference in satisfaction rate was not statistically significant ($P = 0.064 > 0.05$).

As shown in Figure 8, in the survey of the degree to which the professional ability of counselors meets the job needs, the students' evaluation is the highest, with 85% of the "basically satisfied" and above options; the proportions of the other three types of survey respondents who think "unsatisfied" are similar. Both are between 30 and 40%,

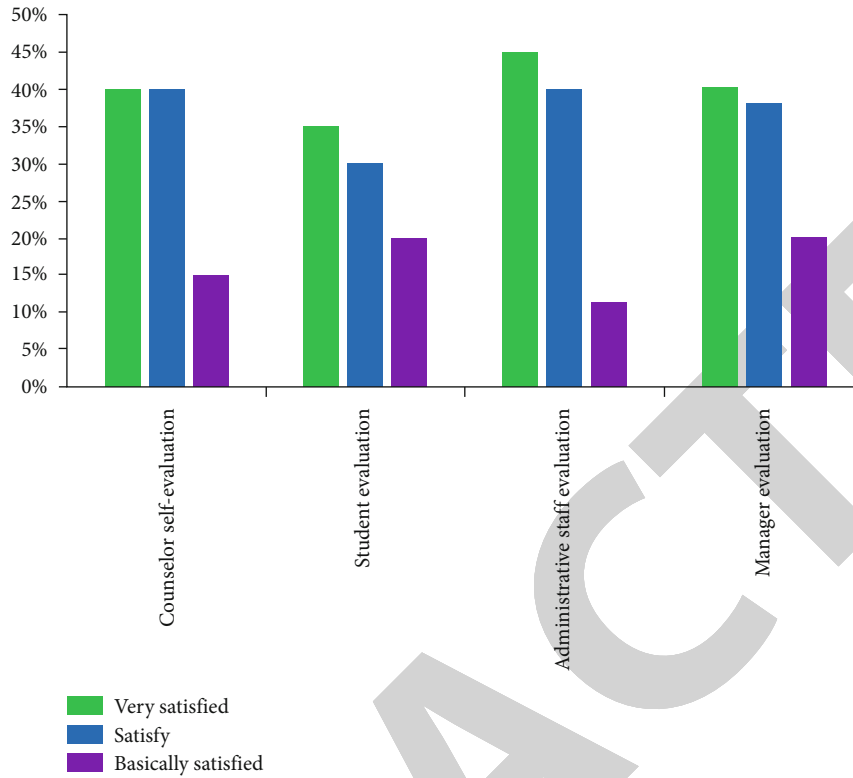


FIGURE 7: Counselor job satisfaction.

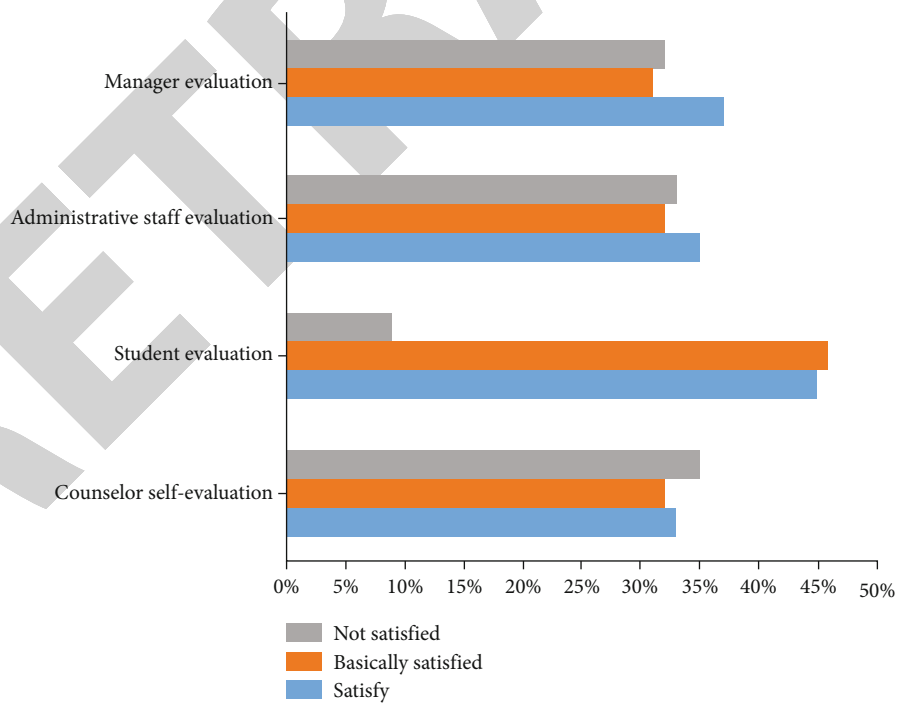


FIGURE 8: Counselor's professional ability to meet job needs.

and the manager's evaluation is the lowest. Comparing student evaluation and counselor self-evaluation, the difference in professional competence satisfaction rate was statistically significant ($P < 0.001$), while the comparison of administra-

tive staff evaluation, manager evaluation, and counselor self-evaluation showed no statistically significant difference in professional competence satisfaction rate ($P > 0.05$). The reason for the large difference in evaluation between

students and teachers may be that the scope of work between students and counselors is limited, and it may not be possible to have a comprehensive and in-depth understanding of the current professional abilities, work needs, and work performance of counselors.

As shown in Figure 9, in the evaluation of the instructor's education and guidance ability, administrative staff's satisfaction is the highest (86%), followed by student evaluation (66%), and the evaluation given by managers is the lowest among all interviewees. "Strong" or "very strong" accounted for only 42%. In the self-evaluation of counselors, the satisfaction rate for this ability evaluation is 63%, but 37% of counselors still think that their education and guidance ability is "average" or even "poor." In the statistical significance test, when the significance level α is 0.05, $P > 0.05$ is "not significant," and $P < 0.05$ is "significant." Comparing student evaluation, administrative staff evaluation, and counselor self-evaluation, the difference in educational guidance ability evaluation results is statistically significant ($P < 0.05$), and there is no statistically significant difference between manager evaluation and counselor self-evaluation ($P > 0.05$).

As shown in Table 2, comparing student evaluation and counselor self-evaluation, the difference in organizational building ability evaluation results is statistically significant ($P < 0.05$), and there is no statistically significant difference between the evaluation of administrators and managers and counselor self-evaluation ($P > 0.05$). Regarding the evaluation of the coaches' organizational building ability, whether it is the coach's self-evaluation or the evaluation of other interviewees, the overall satisfaction is relatively high. Those who choose "strong" or "very strong" reach or exceed 80%. Among them, the students' evaluation is the highest, with a satisfaction rate of over 90%. It can be seen that the current counselor team has played a better role in guiding and promoting student group building, party building work, and apartment building and achieved good results.

As shown in Table 3, comparing the evaluation of administrative staff and managers with the self-evaluation of counselors, the difference in the evaluation results of affairs management ability was statistically significant ($P < 0.05$), and the difference between student evaluation and self-evaluation of counselors was not statistically significant ($P > 0.05$). In the evaluation of the counselor's management ability, the evaluation of the administrative staff is the highest, more than 80% of the respondents choose "strong" or "very strong", followed by the evaluation of the managers, but the recognition rate is also more than two-thirds. It is worth noting that the recognition of counselors' self-evaluation and student evaluation is only between 30 and 40% and more than 20% of the interviewees think that this part of the ability is "poor" or even "very poor."

As shown in Table 4, the differences in the ability evaluation results were statistically significant ($P < 0.05$). The overall evaluation of the crisis management ability of counselors is low. Among the best-evaluated administrative staff, only 30% of the interviewees think that this ability is "stronger" among counselors. Among all the interviewees, the counselors themselves gave the lowest evaluation, and nearly two-thirds of the interviewees chose "poor" or "very poor."

In addition, a small number of students do not understand the ability of counselors in this aspect, which can reflect from the side that some counselors seldom carry out safety education in their daily work.

As shown in Table 5, comparing the evaluation of students and administrative staff with the self-evaluation of the instructor, the difference in the evaluation results of teaching and research ability was statistically significant ($P < 0.05$), and the difference between the evaluation of the administrator and the self-evaluation of the instructor was not statistically significant ($P > 0.05$). The overall evaluation of the instructor's teaching and research ability is not high, and the praise rate for the best-rated administrative staff is not more than 30%. In addition, 39% of students do not understand the ability of counselors in this aspect.

As shown in Figure 10, the survey data on the professional competence of counselors most urgently need to be improved shows that among counselors, students, and administrative staff, the respondents who believe that "business management skills" are most urgently needed to be improved are the most, and this is the same option. The manager's selection ratio is only 15%, which is a big gap. In the view of managers, "education and guidance capabilities" and "crisis management capabilities" are in urgent need of improvement.

3.2. Problems in the Teaching Ability of Counselors

3.2.1. Unbalanced Development of Professional Ability. On the one hand, the development of individual counselors' professional abilities is uneven in all aspects. As the five types of vocational abilities that distinguish the position of counselor from other positions, whether it is the document requirements of the education authorities at all levels or the actual needs of student work, higher requirements are put forward for the five types of vocational abilities such as the ability of education and guidance of counselors [25].

However, the results of the survey on the professional competence development of counselors show that whether it is the counselor self-evaluation, student evaluation, administrative staff evaluation, or manager evaluation, the evaluation satisfaction of the five aspects of counselor professional competence is inconsistent, from the lowest level of 5.55. % (the self-evaluation of crisis management ability counselors is "strong" and "very strong") to the highest 90.04% (the students' evaluation of organization building ability is "strong" and "very strong"), which can reflect to a certain extent, as individual counselors have unbalanced development in the five aspects of professional competence. On the other hand, the overall professional competence of the counselor team has developed unevenly in various aspects. According to the survey results of all parties, the first two abilities that the counselor team has grasped as a whole are organizational construction ability and education guidance ability, and the average satisfaction of the respondents is 85.07% and 62.345% respectively. The two abilities that received the worst evaluation are teaching and research ability and crisis management ability, and the average satisfaction of the respondents are 12.5725% and 16.1675%,

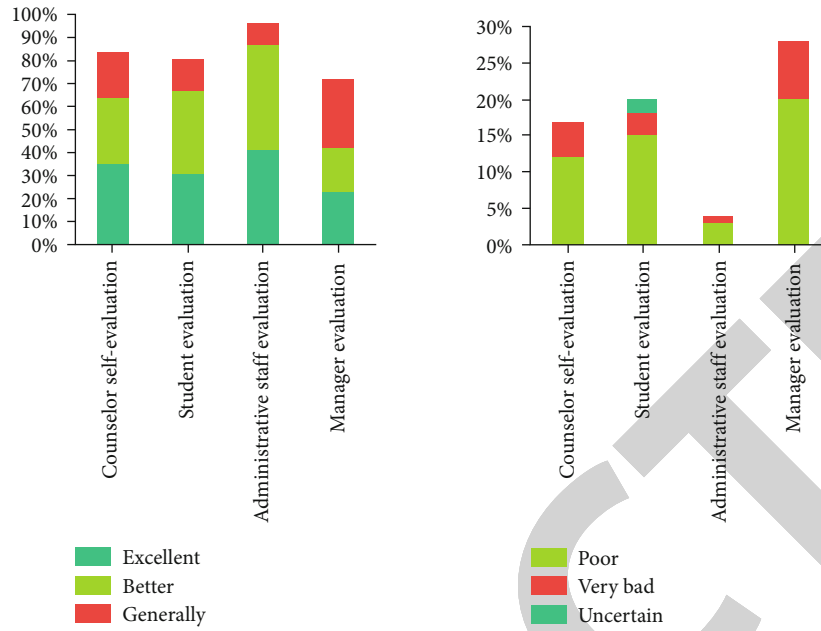


FIGURE 9: Evaluation of counselor's education and guidance ability.

TABLE 2: Evaluation of counselor's organizational construction ability.

Evaluation type	Excellent	Better	Ordinary	Poor	Very bad
Counselor evaluation	40%	45%	12%	2%	1%
Student evaluation	45%	47%	5%	3%	0%
Administrative staff evaluation	47%	42%	8%	3%	0%
Manager evaluation	42%	41%	10%	6%	1%

TABLE 3: Evaluation of counselor's affairs management ability.

Evaluation type	Excellent	Better	Ordinary	Poor	Very bad
Counselor evaluation	15%	30%	40%	12%	3%
Student evaluation	18%	27%	43%	10%	2%
Administrative staff evaluation	47%	42%	8%	3%	0%
Manager evaluation	42%	41%	10%	6%	1%

TABLE 4: Evaluation of counselor's crisis management ability.

Evaluation type	Excellent	Better	Ordinary	Poor	Very bad	Not sure
Counselor evaluation	0%	5%	10%	20%	40%	25%
Student evaluation	6%	20%	51%	13%	2%	8%
Administrative staff evaluation	0%	27%	8%	3%	0%	0%
Manager evaluation	0%	16%	70%	14%	0%	0%

TABLE 5: Evaluation of instructor's teaching and research ability.

Evaluation type	Excellent	Better	Ordinary	Poor	Very bad	Not sure
Counselor evaluation	6%	15%	30%	40%	9%	0%
Student evaluation	3%	5%	51%	2%	0%	39%
Administrative staff evaluation	0%	27%	55%	13%	5%	0%
Manager evaluation	0%	0%	30%	70%	0%	0%

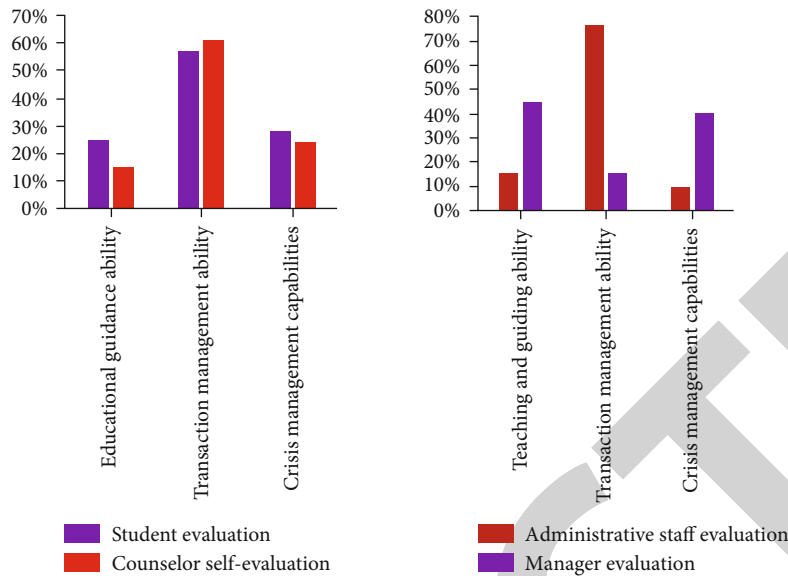


FIGURE 10: Administrators urgently need to improve their capabilities.

respectively. Among counselors, students, administrators, and managers, the proportion of respondents who think that the counselor's teaching and research ability is "strong" or "very strong" are as follows: 16%, 4.66%, 29.63%, and 0%, respectively. Among the students, 37.85% of the respondents indicated that they "do not understand" the ability of the counselor in this aspect, but among those who "understand," their evaluations of "strong" or "very strong" do not exceed 10% which is still the worst item in the evaluation results of students. It can be seen that the teaching and research ability of college counselors is weak and the level of teaching and research needs to be improved. The evaluation of the crisis management ability of counselors is also low. Among counselors, students, administrators, and managers, the proportion of respondents who think that the counselors' crisis management capabilities are "strong" or "very strong" are, respectively, as follows: 5.33%, 16.38%, 29.63%, and 13.33%. Although 7.20% of the students said that they "do not understand" the ability of counselors, among those who "know," the evaluation of "strong" or "very strong" does not exceed 18%. It can be seen that the level of abilities of counselors in this area is also very limited and needs to be further improved.

3.2.2. Restricted Professional Ability. According to the allocation of college counselors, the total number meets the requirements of the Ministry of Education (one counselor for every 200 undergraduate and junior college students), but there is actually an "overloaded" work situation in actual work. On the one hand, there is no rigid ratio requirement for the provision of graduate counselors. When the number of college counselors is in short supply, they often become the object of "sacrifice." Under the premise of limited time and energy, the increase in the number of classes will affect the personal professional ability of counselors to a certain extent. In addition, in recent years, with the further deepening of the "refinement" requirements of counselors, the transactional tasks in the daily work of counselors have

increased, and it takes a lot of time and energy to complete the writing, standardization, sorting, summarization, and summary of various daily work materials. When uploading work, the time available for knowledge reserve and professional ability improvement is correspondingly reduced [26].

3.2.3. Poor Inheritance of Professional Ability. The average age of college counselors is 29.88, and the overall performance is younger. However, in terms of working years, 28 counselors have been employed within 4 years, which is more than one-third of the total number, and 30 counselors have been employed for 4-8 years, exceeding 8. There are 17 years old, among which the longest one has been on the job for 21 years, followed by two on the job for 11 years, and the rest are 10 years or less, with an average working life of 5.2 years. It can be seen that the overall team of counselors is younger, but the work experience is not rich, the time to continue to lead the same class is not long, and the succession and continuation of professional ability is poor [27].

4. Discussion

In order to better optimize the professional teaching ability of counselors, the following sets of "combined punches" are needed:

- (1) Strengthen system guarantees and actively promote the legalization of the instructor training system. Regardless of whether it is an off-campus training institution or a school, a unified regulation has been formed in terms of the training method and content, to ensure that the training is organized according to rules. At present, in order to ensure the smooth progress of the training of counselors, it is necessary to improve the training system regulations, especially the management system construction and

guidance system regulations for the professional ability training of counselors

- (2) Improve training content. From a long-term perspective, completing the all-round development of people is the ultimate goal. In terms of training content, we must adhere to the theoretical knowledge of socialism with Chinese characteristics and the study of party history. We must adhere to the principle of “education first, moral education first.” Competence standards are the basis, the actual situation of the school is the focus, and the goal is to meet the professional competence needs of the majority of counselors. Comprehensive consideration, overall planning, and scientific delineation of training content lay a solid foundation for the development of counselors’ better professional competence. In the training plan, pay attention to the professional ability of some counselors, develop potential and willing counselors, and implement a system of certificated induction
- (3) Innovative training methods. The innovation of training methods can not only improve the quality of training, but also enhance the self-identity of counselors. In terms of training channels, appropriately increasing the communication opportunities for counselors, actively constructing counselors’ communication platforms, and making full use of the power of new media to effectively meet the needs of inter-counselors are new skills, and new skills that must be mastered in today’s advanced Internet technology. In addition, in terms of the training model, gradually formulate and implement a training plan for instructors, use a combination of daily training and semester training, and pay attention to the coordination of internal school training, provincial training, and national training. Actively introduce new forms of teaching and training models such as scenario simulation method and social practice method. Actively introduce new theories and new methods to guide the training plan, provide regular training feedback, formulate a reasonable training plan, listen to the counselors’ expectations for training, and use the most popular forms to improve the various professional abilities of the counselors. We must be brave to innovate, continue to innovate, continue to study new situations, discover new problems, put forward new ideas, and take new paths

5. Conclusion

In response to the research results of colleges and universities, this paper eliminates the relevant unrepresentative data and then calculates and analyzes the conclusion that there is an imbalance in the teaching ability of the instructors, which is fully realized by the instructors, students, and school administrators. In order to better improve the teaching ability of counselors, improvements can be made in four aspects: the establishment of theoretical ideas, elimination of current professional ability disadvantages, improvement of system

construction, and strengthening of system implementation, so as to establish a good external development environment and enhance the career of counselors. The ability is to improve and to promote the professional ability of counselors to take a “professionalization-specialization-expertization” road. It is ensured that the improvement of the professional ability of college counselors is evidence-based and law-based, and it can be truly feasible in practice, and it can truly promote the improvement of the professional ability of college counselors in science and engineering.

Data Availability

Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Conflicts of Interest

The author states that this article has no conflict of interest.

Acknowledgments

This work was supported by the fund Educational Science Planning in Shaanxi Province: A Study on the Cultivation of Vocational Education Talents in Shaanxi Province under the Background of “5 G Manufacturing,” Project No: SGH20Y1528.

References

- [1] D. Vandenberg, “Re-energize your teaching by attending conferences,” *Tech Directions*, vol. 76, no. 7, pp. 27–27, 2017.
- [2] R. Durden, “Redbird GIFT: flight training upgrade,” *Aviation Consumer*, vol. 49, no. 10, pp. 18–20, 2017.
- [3] S. Ok, “Autonomy in an EFL teacher training context: trainee teacher perceptions of instructor expectations,” *Australian Journal of Teacher Education*, vol. 41, no. 3, pp. 66–86, 2016.
- [4] L. A. Phillips, C. Baltzer, L. Filoon, and C. Whitley, “Adult student preferences: instructor characteristics conducive to successful teaching,” *Journal of Adult & Continuing Education*, vol. 23, no. 1, pp. 49–60, 2017.
- [5] G. L. Reglin, “CAI effects on mathematics achievement and academic self-concept seminar,” *Journal of Educational Technology Systems*, vol. 18, no. 1, pp. 43–48, 2016.
- [6] M.-G. Han, “Role expectations on homeroom teacher of elementary school as a sports instructor,” *Korean Society For The Study Of Physical Education*, vol. 20, no. 4, pp. 73–84, 2016.
- [7] N. Kharouf, H. Cebula, S. Cifti et al., “Interet pedagogique de la “Micro-Clock” pour l’evaluation de l’acquisition et du maintien des competences en microchirurgie,” *Hand surgery & rehabilitation*, vol. 38, no. 6, pp. 353–357, 2019.
- [8] M. Amini, J. Kojuri, M. R. Dehghani et al., “Designing a system of mentorship in Shiraz University of Medical Sciences,” *Journal of Advances in Medical Education & Professionalism*, vol. 5, no. 2, pp. 49–50, 2017.
- [9] M. M. Consoli and P. Marin, “Teaching diversity in the graduate classroom: the instructor, the students, the classroom, or all of the above?,” *Journal of Diversity in Higher Education*, vol. 9, no. 2, pp. 143–157, 2016.

- [10] F. Caron, E. Duflos, D. Pomorski, and P. Vanheege, "GPS/IMU data fusion using multisensor Kalman filtering: introduction of contextual aspects," *Information Fusion*, vol. 7, no. 2, pp. 221–230, 2006.
- [11] K. A. Semmens, M. C. Anderson, W. P. Kustas et al., "Monitoring daily evapotranspiration over two California vineyards using Landsat 8 in a multi-sensor data fusion approach," *Remote Sensing of Environment*, vol. 185, no. 185, pp. 155–170, 2016.
- [12] N. Yokoya, P. Ghamisi, J. Xia et al., "Open data for global multimodal land use classification: outcome of the 2017 IEEE GRSS data fusion contest," *IEEE Journal of Selected Topics in Applied Earth Observations & Remote Sensing*, vol. 11, no. 5, pp. 1363–1377, 2018.
- [13] E. Bareinboim and J. Pearl, "Causal inference and the data-fusion problem," *Proceedings of the National Academy of Sciences of the United States of America*, vol. 113, no. 27, pp. 7345–7352, 2016.
- [14] A. Amamra and N. Aouf, "Real-time multiview data fusion for object tracking with RGBD sensors," *Robotica*, vol. 34, no. 8, pp. 1855–1879, 2016.
- [15] A. V. Vo, L. Truong-Hong, D. F. Laefer et al., "Processing of extremely high resolution LiDAR and RGB data: outcome of the 2015 IEEE GRSS data fusion contest—part B: 3-D contest," *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, vol. 9, no. 12, pp. 5560–5575, 2016.
- [16] K. Liu and S. Huang, "Integration of data fusion methodology and degradation modeling process to improve prognostics," *IEEE Transactions on Automation Science and Engineering*, vol. 13, no. 1, pp. 344–354, 2016.
- [17] S. Michael and X. X. Zhu, "Data fusion and remote sensing: an ever-growing relationship," *IEEE Geoscience and Remote Sensing Magazine*, vol. 4, no. 4, pp. 6–23, 2016.
- [18] L. Mou, X. Zhu, M. Vakalopoulou et al., "Multitemporal very high resolution from space: outcome of the 2016 IEEE GRSS data fusion contest," *IEEE Journal of Selected Topics in Applied Earth Observations & Remote Sensing*, vol. 10, no. 8, pp. 3435–3447, 2017.
- [19] D. Polan, S. Brady, and R. Kaufman, "SU-C-207B-05: tissue segmentation of computed tomography images using a random forest algorithm: a feasibility study," *Medical Physics*, vol. 43, pp. 3330–3331, 2016.
- [20] Z. Tang, Z. Mei, W. Liu, and Y. Xia, "Identification of the key factors affecting Chinese carbon intensity and their historical trends using random forest algorithm," *Journal of Geographical Sciences*, vol. 30, no. 5, pp. 743–756, 2020.
- [21] X. U. Yonggang, J. Zhang, X. Gong, K. Jiang, H. Zhou, and J. Yin, "A method of real-time traffic classification in secure access of the power enterprise based on improved random forest algorithm," *Power System Protection and Control*, vol. 44, no. 24, pp. 82–89, 2016.
- [22] F. Canovas-Garcia, F. Alonso-Sarria, F. Gomariz-Castillo, and F. Oñate-Valdivieso, "Modification of the random forest algorithm to avoid statistical dependence problems when classifying remote sensing imagery," *Computers & Geosciences*, vol. 103, pp. 1–11, 2017.
- [23] J. Y. Kim, M. Lee, K. L. Min et al., "Development of random Forest algorithm based prediction model of Alzheimer's disease using neurodegeneration pattern," *Psychiatry Investigation*, vol. 18, no. 1, pp. 69–79, 2021.
- [24] A. R. Zarei, M. R. Mahmoudi, and A. Shabani, "Investigating of the climatic parameters effectiveness rate on barley water requirement using the random forest algorithm, Bayesian multiple linear regression and cross-correlation function," *Paddy and Water Environment*, vol. 19, no. 1, pp. 137–148, 2021.
- [25] S. Pasinetti, A. Fornaser, M. Lancini, M. De Cecco, and G. Sansoni, "Assisted gait phase estimation through an embedded depth camera using modified random forest algorithm classification," *IEEE Sensors Journal*, vol. 20, no. 6, pp. 3343–3355, 2020.
- [26] S. Govindarajan, J. A. Ardila-Rey, K. Krithivasan, J. Subbaiah, N. Sannidhi, and M. Balasubramanian, "Development of hypergraph based improved random forest algorithm for partial discharge pattern classification," *Access*, vol. 9, pp. 96–109, 2021.
- [27] Z. Gu and Q. Li, "Half-voting random forest algorithm and its application in indoor pedestrian navigation," *Automatic Control and Computer Sciences*, vol. 54, no. 2, pp. 100–109, 2020.