Retraction

Retracted: Analysis of Key Indicators Related to the Teaching of Floral Art Skills Competition Based on Fuzzy Hierarchical Model

Scientific Programming

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1].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] N. Wu and J. Zhou, "Analysis of Key Indicators Related to the Teaching of Floral Art Skills Competition Based on Fuzzy Hierarchical Model," *Scientific Programming*, vol. 2022, Article ID 7765024, 8 pages, 2022.

Hindawi

Research Article

Analysis of Key Indicators Related to the Teaching of Floral Art Skills Competition Based on Fuzzy Hierarchical Model

Ningling Wu [ID] **and Jieliang Zhou**

College of Plant Science and Technology, Hunan Biological Electromechanical Vocational Technical College, Changsha 410127, China

Correspondence should be addressed to Ningling Wu; 18674814086@hnbemc.edu.cn

The art of floral arrangement has become an essential part of the curriculum to enhance students' professionalism. By studying the connotation of academic style construction and disciplinary skill competitions and the promotion of disciplinary skill competitions to academic style construction based on the fuzzy hierarchy model, we propose to keep abreast of the times and attach importance to the significance of disciplinary skill competitions; to deepen and improve the organizational structure; improve the evaluation and incentive mechanisms to create a brand; and to gradually form a multilevel management and long-term mechanism to build a disciplinary skill competition system. The aim is to deepen the construction of the university academic style and provide a solid platform for promoting the cultivation of skilled and comprehensive talents.

1. Introduction

The inclusion of traditional Chinese flower arranging in the second national list of intangible cultural heritage in 2008 means that the art of flower arranging has entered a new phase of conservation. As an educator in a vocational college, I am aware that in order to occupy a place in society, students in higher education institutions must be trained in all aspects of floral art, and that it is imperative to improve the quality of students' training, as well as their hands-on skills [1].

The art of flower arranging is so vast and profound that it is impossible to teach theoretical knowledge in a limited number of hours and at the same time have the students really master the skill [2]. The only way to make use of the limited number of hours we have is to motivate the students and bring floristry into their lives. In the teaching, the theoretical knowledge is divided into 10 hours, including the history of the development of floristry in the East and West, the understanding of flowers, color combinations, physical phenomena, and floral design, and the principle of "the master introduces the door, the practice depends on the individual." In the other 20 hours, the students' initiative is brought into full play, from imitating outstanding flower arrangements and gaining experience in the hand, to discussing in small groups or proposing innovative designs, so that they can fully feel the sense of achievement when their work is completed [3].

The teaching of flower arranging is a hands-on discipline, and although there is theoretical knowledge, it is not a subject that can be completed by rote memorization. The course is therefore arranged in a ratio of 1 : 2 between theory and practice. In the first step, based on the theoretical knowledge and the examples of flower arrangements provided by the teacher in the classroom, the students are asked to work in groups to make flower arrangements, combining theory with practice [4]. For most of us who have never been involved in floral art before, the teacher has asked the students to imitate existing works, so that they can understand intuitively the structure of a flower arrangement and how to make it. The main methods of evaluation are through peer review and teacher summary [5]. The third step is to train students to be more creative and adaptable in the skills competition. This involves two types of training: (1) preparing flowers from which students can choose the type, color, and quantity of flower material to create their own ideas, which must be both beautiful and positive. (2) The students will be asked to think about the effect of the flower arrangement and to buy the necessary materials to make it.

And as the soul of a school, academic style refers to the attitude and ethos that students display in their studies and is the external expression of their inner qualities such as ideas, morals, interests, and qualities in their studies, which can promote and sustain their learning activities [6].

The construction of academic style not only affects the improvement of the overall teaching quality of the school and the realization of the teaching objectives of the university but also has a non-negligible role in the long-term planning of the school and the overall development of students [7]. It is of great practical significance to carry out various kinds of academic style construction activities and continuously deepen the construction of academic style in colleges and universities. Guiding students to participate in skills competitions can stimulate students' enthusiasm for learning, enhance their innovation consciousness and collaboration ability, and is one of the most effective ways to promote the overall improvement of students' comprehensive quality and build a good academic style.

2. The Connotation of Academic Style Building and Subject Skills Competition in Higher Education

The definition of "academic style" in the Chinese dictionary is "the ethos of a school, the collective character". Academic style in colleges and universities refers to "a more stable purpose, spirit, attitude, and method of governance formed by all teachers and students in colleges and universities in the process of long-term education practice, which is the expression of the group psychology and behavior of all teachers and students in governance" [8]. The construction of academic style is the key to university education, an important content of the construction of socialist spiritual civilization in universities, an important way to integrate the socialist core value system into national education, an important condition to realize the cultivation goal of socialist schools, and an important index to measure the level of a university [9]. As a kind of subtle and powerful spiritual force, a good academic style has a great influence on the creation and development of the academic atmosphere in colleges and universities and can inspire students to grow up healthily and develop comprehensively. The construction of academic styles in colleges and universities is directly related to the quality of talent cultivation.

The academic skills competition is a competition to examine students' ability to combine theory with practice and solve practical problems. It is a competition for the general public and is a powerful way to stimulate potential, enhance interest, cultivate a sense of innovation and collaboration, and provide a series of activities to enhance students' confidence in learning and work [10]. Let us take Hunan Agricultural University as an example. As an agricultural institution, the university has special advantageous majors such as tea science and ornamental horticulture, and actively organizes related skills competitions. In the past 23 years, it has hosted many tea competitions at all levels and won more than 20 national and provincial tea competitions.

The College of Horticulture and Landscape Architecture has been running a regular floral arrangement skills competition for students from the province since 2012, with a series of activities such as precompetition coaching, floral arrangement training, and master lectures at different levels [11]. On the one hand, the competitions enrich the students' lives after school, increase their motivation to study, enable them to learn and think about another skill to earn a living, and broaden the path of graduation competition for university students; on the other hand, the development of such subject skills competitions is a great support to the school's overall academic style construction work, which is of great importance.

3. Fuzzy AHP Integrated Evaluation of Competition Competitiveness

Fuzzy hierarchical analysis (AHP) is a kind of system analysis method combining qualitative and quantitative analysis. This method introduces the principle of affiliation, which can improve the shortcomings of the hierarchical analysis method in constructing the pairwise comparison judgment matrix with the subjectivity of human judgment and adjust the pairwise comparison matrix into a fuzzy consistency matrix, which overcomes the traditional hierarchical analysis method that requires several adjustments and tests to make the judgment matrix pass the consistency test. However, this method lacks the unified quantification of indicators in the overall evaluation of the target and is only used for the weight analysis of indicators in practical applications [12]. Therefore, the fuzzy hierarchical analysis method is combined with the fuzzy comprehensive evaluation method to evaluate the competitiveness of university students' competitions, i.e., the weights of each index are calculated by the fuzzy hierarchical analysis method first, and then the overall evaluation is carried out by the fuzzy comprehensive evaluation method [13].

3.1. General Steps of Fuzzy Hierarchical Analysis for Evaluation

3.1.1. Constructing a fuzzy consistency matrix

Definition 1. Let the matrix $R = (r_{ij})_{n \times n}$, if it satisfies $0 \leq r_{ij} \leq 1 \, (i = 1, 2, \ldots, n, j = 1, 2, \ldots, n)$, then R is said to be a fuzzy matrix.

Definition 2. A fuzzy matrix R is said to be fuzzy complementary if the fuzzy matrix $R = (r_{ij})_{n \times n}$, satisfying $r_{ij} + r_{ji} = 1 \, (i = 1, 2, \ldots, n; j = 1, 2, \ldots, n)$.

Definition 3. A fuzzy matrix F is said to be fuzzy consistent if the fuzzy complementary matrix $F = f(ij)$ satisfies $r_{ij} + r_{ji} = 1 \, (i = 1, 2, \ldots, n; j = 1, 2, \ldots, n)$ for any k.

   (1) Hierarchical single ranking, the root method was used to calculate the weights of each factor in the hierarchy and the weight indicators were normalized to

$$T_j^k = \frac{\overline{T}_j}{\sum_{j=1}^m \overline{T}_j}, \overline{T}_j = \left[\prod_{j=1}^m r_{ij}^k\right]^{1/m}. \tag{1}$$

(2) The total ranking of the levels, combining the weights of each level, gives the weight of the indicator level relative to the total objective, i.e.,

$$w_n^1 = \prod_2^{k=n} w_k^{k-1} = w_1^{n-1} w_2^{n-2} \cdots w_3^2 w_2^1. \tag{2}$$

(3) Comprehensive evaluation of the model using the fuzzy integrated evaluation method.

3.2. The Process of Implementing a Competition Competitiveness Evaluation Model for University Students

3.2.1. Calculation of Indicator Weights Using Fuzzy AHP. According to the calculation steps of the fuzzy analytic hierarchy process, the five primary indicators and 19 secondary indicators in the model are designed into a closed hierarchical model questionnaire with the Likert scale method. Through the network questionnaire star platform, some graduates of local undergraduate normal universities, competition instructors, practice base instructors, and student work managers, the person in charge of the employer conducts a questionnaire survey, converts the collected data with SPSS software, constructs a fuzzy consistency matrix, and sorts the hierarchy to obtain the weight of the corresponding indicators of each criterion level, as shown in the following tables: Table 1, Table 2, Table 3, Table 4, and Table 5.

From Table 1, the weights of the indicators in the criterion level are $w = (0.219, 0.272, 0.241, 0.268)^T$ and the weights of the indicators in the subcriterion level can be calculated as shown in Tables 1–5, which show that the fuzzy consistency matrix of the indicators and their relative weights to the objectives in the competition competitiveness model are knowledge and skills (B_2), redevelopment ability (B_4), morality and quality (B_3), and basic competitiveness (B_1). Among the indicators of "knowledge and skills", teacher training skills, social practice skills, and academic achievement have relatively greater influence, followed by the ability to use modern technology, research and innovation, and academic competitions; among the indicators of "redevelopment ability", the ability to combine learning and application has relatively greater influence. In the index factor of "moral and quality," the influence of professional ethics and dedication is relatively more important, followed by honesty and trustworthiness, law-abiding, collective honor, and political performance; in the index factor of "basic competitiveness, among the "basic competitiveness" indicators, communication ability has a relatively higher weighting, followed by psychological quality, physical quality, and family background.

According to the overall hierarchical ranking formula $w_n^1 = \prod_2^{k=n} w_k^{k-1} = w_1^{n-1} w_2^{n-2} \cdots w_3^2 w_2^1$ out of $w_k^{k-1} = (w_1^k, w_2^k, \ldots, w_n^k)$, the influence of 19 secondary indicators on the

TABLE 1: Fuzzy consistency matrix of primary indicators in competition competitiveness model and its relative weight to objectives.

Arrangement B	B_1	B_2	B_3	B_4	w
B_1	0.49	0.40	0.457	0.416	0.22
B_2	0.602	0.51	0.558	0.509	0.273
B_3	0.5554	0.444	0.51	0.452	0.242
B_4	0.595	0.493	0.55	0.51	0.269

TABLE 2: Fuzzy consistency matrix and relative weights for each secondary indicator in criterion B_1 in the competition competitiveness model.

Arrangement B_1	B_{11}	B_{12}	B_{13}	B_{14}	w_1
B_{11}	0.510	457	0.489	0.70	0.267
B_{12}	0.545	0.51	0.53	0.743	0.30
B_{13}	0.517	0.472	0.51	0.715	0.277
B_{14}	0.312	0.259	0.287	0.51	0.164

TABLE 3: Fuzzy consistency matrix and relative weights for each secondary indicator in criterion B_2 in the competition competitiveness model.

Arrangement B_2	B_{21}	B_{22}	B_{23}	B_{24}	B_{25}	w_2
B_{21}	0.51	0.466	0.458	0.497	0.469	0.162
B_{22}	0.536	0.49	0.493	0.532	0.504	0.178
B_{23}	0.544	0.509	0.51	0.54	0.509	0.179
B_{24}	0.505	0.47	0.462	0.51	0.472	0.166
B_{25}	0.533	0.498	0.491	0.53	0.60	0.176

TABLE 4: Fuzzy consistency matrix and relative weights for each secondary indicator in criterion B_3 in the competition competitiveness model.

Arrangement B_3	B_{31}	B_{32}	B_{33}	B_{34}	w_4
B_{31}	0.51	0.517	0.469	0.532	0.21
B_{32}	0.485	0.51	0.453	0.516	0.194
B_{33}	0.533	0.547	0.51	0.564	0.214
B_{34}	0.47	0.46	0.438	0.51	0.189

TABLE 5: Fuzzy consistency matrix and relative weights for each secondary indicator in criterion B_4 in the competition competitiveness model.

Arrangement B_4	B_{41}	B_{42}	B_{43}	B_{44}	w_4
B_{41}	0.49	0.45	0.455	0.495	0.237
B_{42}	0.561	0.51	0.515	0.556	0.267
B_{43}	0.545	0.487	0.51	0.55	0.26
B_{44}	0.516	0.117	0.47	0.51	0.24

overall target competition competitiveness is weighted as follows: learning ability, teamwork ability, self-improvement ability, communication ability, organization and management ability, psychological quality, physical quality, professional ethics and professionalism, honesty and trustworthiness, teacher training skills, compliance with the law, social practice ability, academic achievement, collective honor, political performance, modern technology ability,

FIGURE 1: The flower technology course.

research and innovation ability, discipline competition, and family background.

3.3. The Case of Fuzzy Comprehensive Evaluation Method for Evaluating the Competitiveness of University Students' competitions.

The relative weights of the indicators in the competition competitiveness model calculated by the above fuzzy hierarchical analysis method can be used to calculate the overall competition competitiveness of students by using fuzzy comprehensive evaluation, and the combination of the two methods can comprehensively evaluate the competitiveness of students so as to improve the competition competitiveness of students in a targeted manner [14].

The evaluation team is composed of graduates, competition instructors, student work managers, representatives of practice base instructors, and some employers, and according to the observation points contained in each index, a set of comments $U = \{strong, strong, fair, poor\}$.

Let us determine the relationship matrix between the criterion level B and U, $B_1 = \{0.3, 0.5, 0.2, 0\}$, $B_2 = \{0.2, 0.2, 0.5, 0.1\}$, $B_3 = \{0.3, 0.4, 0.2, 0.1\}$, and $B_4 = \{0, 0.3, 0.5, 0.2\}$. The specific meaning is exemplified by the fact that 30% of the evaluation team considered the observation of the basic competitiveness indicator in the overall competition competitiveness of the class to be strong, 50% considered it to be strong, 20% considered it to be average, and 0% considered it to be poor. From this, the relationship matrix is obtained as follows:

$$R = \begin{pmatrix} B_1 \\ B_2 \\ B_3 \\ B_4 \end{pmatrix} = \begin{pmatrix} 0.3 & 0.5 & 0.2 & 0 \\ 0.2 & 0.2 & 0.5 & 0.1 \\ 0.3 & 0.4 & 0.2 & 0.1 \\ 0 & 0.3 & 0.5 & 0.2 \end{pmatrix}. \tag{3}$$

Based on the weights of the indicators at each level of the criterion layer calculated above $w = \{0.219, 0.272, 0.241, 0.268\}$. The weighted average fuzzy synthesis operator $M(\bullet, \oplus)$ is used to synthesize W and foot to obtain a fuzzy comprehensive evaluation result vector v, i.e., $v = w^{\circ}R$. Here, "." is the weighted average fuzzy synthesis operator $M(\bullet, \oplus)$, which is calculated as follows:

$$v_j = \min\left(1, \sum_{i=1}^{p} w_j r_{ij}\right), j = 1, 2, \ldots n. \tag{4}$$

Then there are

$$v = w^{\circ}R = (0.219, 0.272, 0.241, 0.268)^{\circ}\begin{pmatrix} 0.3 & 0.5 & 0.2 & 0 \\ 0.2 & 0.2 & 0.5 & 0.1 \\ 0.3 & 0.4 & 0.2 & 0.1 \\ 0 & 0.3 & 0.5 & 0.2 \end{pmatrix}$$

$$= \{0.1924, 0.3407, 0.362, 0.1049\}. \tag{5}$$

The calculation results show that through the fuzzy comprehensive evaluation of the indicators, 19.24% of the students in the selected graduation class have strong competitive ability, 34.07% have strong competitive ability, 36.2% have average competitive ability, and 10.49% have poor competitive ability. According to the order of weighting of each observation, universities should develop corresponding countermeasures to improve the competitive ability of students with average and poor competitive ability when training talents.

4. Design Effect

Firstly, according to market demand, there is a division between flowers for personal consumption and flowers for weddings and business meetings. The students were asked to investigate the daily use of flowers, and the general demand was for loose flowers to decorate homes at wholesale, mainly in vases, or for people to use them for hobbies and cultivation, arranging flowers according to their own interests [15]. For weddings and conferences, the majority of flowers are used for the decoration of the venue, mainly in large groups, specifically for the decoration of the sign-in desk, the podium, and the guests' desk in the hotel venue, as well as for the local decoration of the floats, the new house, and the participants in the conference. As a teacher of floristry, the floristry course, shown in Figure 1, is
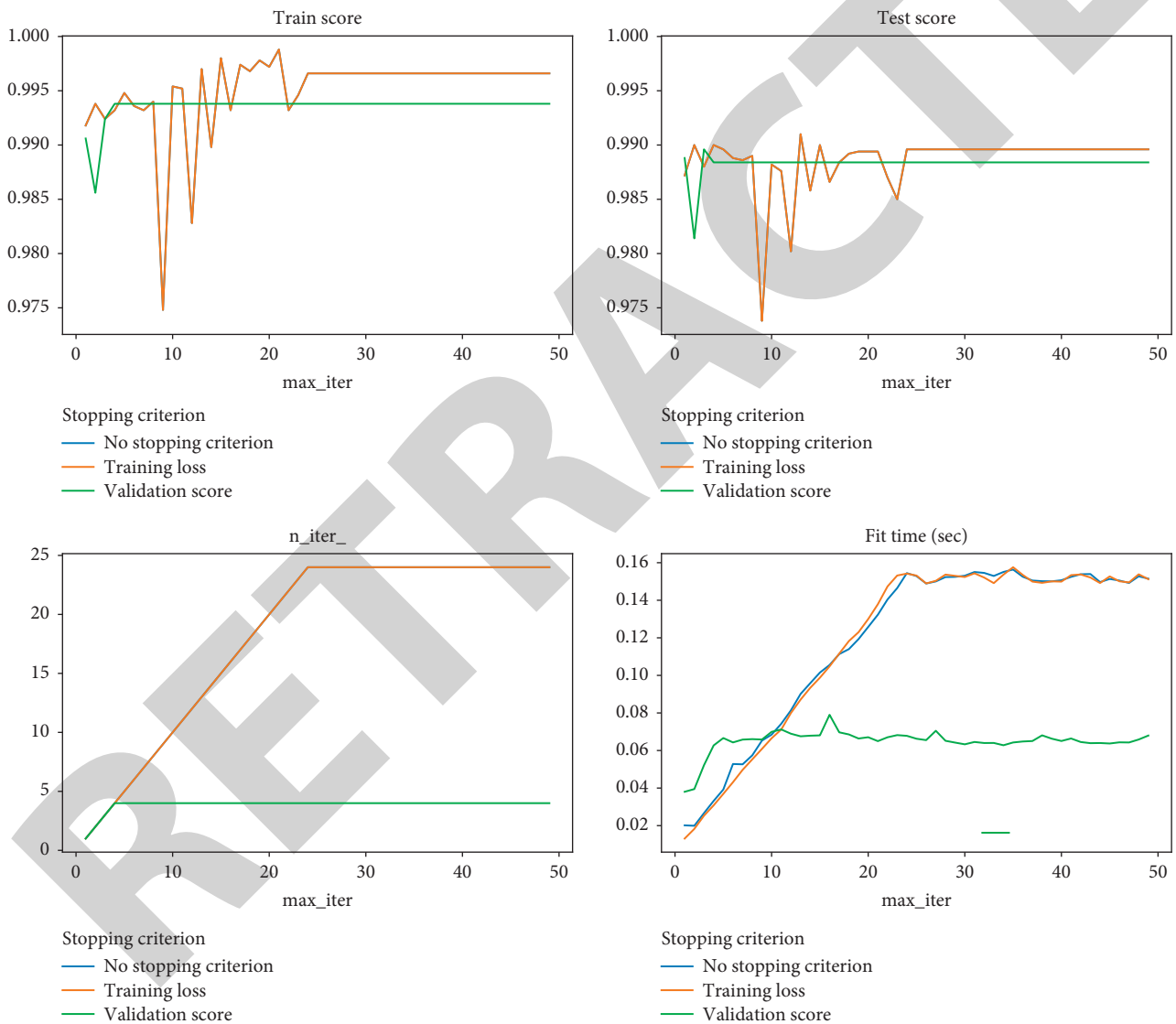
Figure 2: Example of flower arrangement.

Figure 3: Effect of flower arrangement with different parameters.

designed to provide students with an in-depth understanding of the art of floral arranging, not only through the operation of floral arrangements in the training room but also through the process of planting and growing various floral materials.

Professional ethics are the most fundamental, basic, and minimum ethical concepts for those engaged in a certain

kind of work. As a florist, the most fundamental aspect of professional ethics is the use of floral art to work for human civilization, and for the sake of this civilization, I and my students are required to be highly disciplined in our professional ethics and to create works with a soul: to work in the art of floral arrangement, one must first love floral art and not dislike the hardships involved in its creation [16].
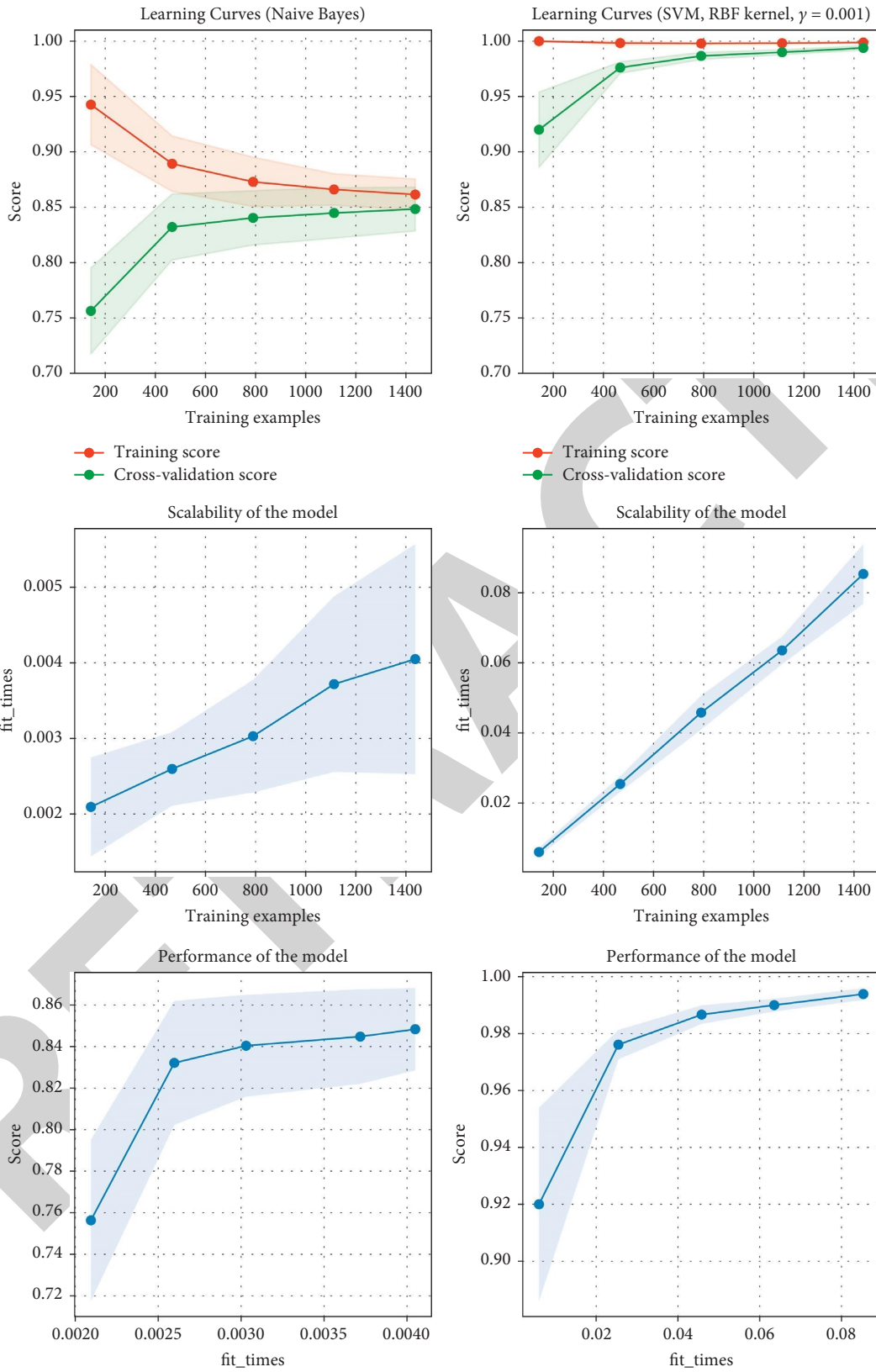
FIGURE 4: Teaching effects with different training effects.

The work of floral arrangement is a work of art. Floral artwork is all about beauty, but in practice, we flower arrangers have to do a lot of preliminary work before the flowers and plants become a work of art, as shown in Figure 2.

5. Case Studies

The academic skills competition is neither a matter for a few students nor the ultimate goal, but a link in the teaching system and a means to cultivate the innovative and practical ability of college students [17]. It is only by allowing all interested students to participate in it that we can fundamentally create a good academic atmosphere and contribute to the construction of an excellent academic style in universities. Therefore, first of all, it is necessary to move towards a profound understanding of the disciplinary skills competition from the ideological point of view, to realize the real meaning of the skills competition, and to create a harmonious atmosphere around the disciplinary skills competition with the scientific outlook on development as the guiding ideology. The effect of flower arrangement under different parameters, as shown in Figure 3, (a) perfect organizational structure and a sound evaluation and incentive mechanism are important guarantees for the smooth development of the discipline skills competition. The documents related to the competition are unified by the school, and the competition organization steering committee is unified in its deployment, which makes the organization work all based on evidence and responsibility to the people.

The university's academic affairs management department constantly standardizes the process of subject skills competitions, summarizes and recognizes them in a timely manner, and institutionalizes them, incorporating competition-related organization and coaching work into the assessment and evaluation system. As shown in Figure 4, the different teaching effects are rewarded with extra points for comprehensive assessment, Xiangnong youth quality development credits, and competition bonuses for the winning students; the instructors are rewarded with guidance bonuses, workload recognition, and tilted title assessment and the outstanding individuals and groups who have won awards are commended at the annual school-level commendation conference, which has comprehensively stimulated the enthusiasm and initiative of students and teachers for the subject skills competitions [18]. To a certain extent, the branding of subject skills competitions is a reflection of the characteristics of a university, and subject skills competitions with subject characteristics and professional features are an important opportunity to enhance teaching quality and promote innovation [19]. By promoting the multilevel management of disciplinary skills competitions, the disciplinary skills competitions can be developed on a large scale so as to realize the branding of high-quality disciplinary skills competitions with one specialty in one college and many products in one university.

In summary, the course is taught in groups, with free combinations, observation of students' performance, and a graded approach to teaching students according to their abilities. In terms of credit assessment, the theoretical knowledge is assessed in the form of written questions and answers, accounting for 30% of the total grade; the practical production of floral artworks accounts for 40% of the total grade; and the usual performance accounts for 30% of the total grade so that a combination of various aspects can be achieved to arrive at an objective and fair overall grade for the students [20, 21].

6. Conclusions

As an important element in the development of comprehensive quality education activities in universities, it can not only stimulate the interest of university students in learning scientific knowledge and enthusiasm for learning and strengthen their hands-on ability, but also enhance the initiative and creativity of students in learning, which can contribute to the overall improvement of comprehensive quality education and talent quality training of university students, demonstrate the enterprising spirit of teachers and students, cultivate a group of innovative and entrepreneurial talents with high sensitivity to competition, and play a positive role in the construction of university academic style.

Data Availability

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

Conflicts of Interest

The authors declare that they have no conflicts of interest regarding this work.

Acknowledgments

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