Exploration of Music Teaching Reform Program in Colleges and Universities Oriented on the Development of Corporate Culture Industry

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Abstract:This paper takes the development of enterprise culture industry as the orientation, takes the transformation of teaching mode as the base point, proposes the SPR teaching mode, and applies the mode to the specific course teaching process to establish a fuzzy evaluation model, according to the expert assessment to give weight to get the influence of the music teaching reform on the contemporary college students, applies the teaching quality evaluation model, and describes the stability of students' learning by using the angle of the state vector, and uses the probability of transfer variance to describe the overall learning volatility. The analysis shows that student support for the teaching model has been increasing, with 97% of the student sample surveyed supporting the promotion of the SPR teaching model. The consistency of the results of the mutual validation of the two models suggests that a reform of music teaching in colleges and universities is necessary.

Keywords: corporate culture; college music; state vector; SPR teaching model; fuzzy evaluation

1. INTRODUCTION

The emergence of the term and typology of cultural and creative industries goes back to the beginning of the new century. Europe and the United States took the lead in discovering the kinetic energy of enterprise development provided by cultural creativity and sought to form it into a brand new industrial category to drive new economic growth points with culture [1]. Currently, cultural and creative industry clusters involve as few as a few hundred enterprises, or as many as thousands [2]. Cultural products based on the push of innovation, and the formation of the stimulus for the cultural market, bringing economic benefits [3]. China's traditional music culture and art has a long and colorful history. In the contemporary brand-new social environment, the traditional music culture is being renewed through the industrial construction and innovation, and glows with a new luster [4]. At the same time, some emerging art forms with the aesthetic appeal of the times also need to be formed into unique art products through industrialization and integrated into the social life of the people [5]. Therefore, the new category of cultural and creative industries has appeared in front of the public and formed a huge industrial chain and scale by virtue of the exploration and practice in China for more than ten years. As we all know, the important productivity of cultural and creative industries comes from the young generation with whimsical ideas and strong application ability, and only a constant influx of elite talents in specialized fields can promote the development of cultural and creative industries in a healthy direction [6].

Literature [7] proposes a new framework to help understand how research findings influence large-scale educational practices. Greene's model of informal learning in music education is an example of how research findings can influence classroom practice, explored through the lens of this framework. The methods used in the case study included observations, interviews and documentary sources, and the data was analyzed thematically. The literature [8] uses the distinction between the live and recorded domains as an effective framework to further scholarly understanding of how music teaching and learning has shifted to the impact of

online music practice due to the restrictions of the new Crown Pneumonia epidemic. Data were collected through online participant observation and interviews with arts instructors and online program coordinators. Findings revealed tensions between inclusive values and aesthetic qualities. It was implied that arts instructors need to adapt their goals, conceptualizations, and roles in music practice. These findings provide timely insight into how instructors change when teaching methods shift from offline to online environments. Literature [9] assessed the impact of 5E modeling instruction and prior learning experiences on students' learning of Newtonian mechanics concepts. Using a 2 x 2 analytic factorization research design, 172 undergraduate students were assessed for their conceptual understanding before and after the experiment. These participants were divided into four groups with different items for each group. The results indicated that both the 5E teaching model and previous learning experiences contributed to students' conceptual learning in mechanics. Using instructor observations and student feedback, the literature [10] critically reflects on a studio model that was iteratively refined over the course of two semesters with the intent to intentionally exacerbate the complexity already present in the pedagogy to generate new knowledge. A set of strategies were outlined to enable students to manage this uncertainty to ensure that this was beneficial to student learning. Some of the challenges that educators may face when taking on the dual role of teacher and research partner are also identified, and recommendations are provided for addressing these challenges.

The aim of the literature [11] is to shift science teaching from a focus on discrete facts superficially covered to an in-depth exploration of the core ideas of a few disciplines. An instrument for assessing the quality of teaching and learning is introduced, which can provide a window into the extent to which students are learning science through the rigorous opportunities envisioned in these reforms. The conceptual underpinnings of the tool and its development process are presented, as well as the results of a pilot test. Data collection involved classroom work, student work, and video recordings from the classrooms of nine science teachers at a local school. Analyses indicate that an instructional quality assessment tool

can reliably capture changes in science classroom rigor. The training of students in higher education often focuses on improving motor skills at the expense of improving theoretical cognition. Literature [12] analyzes methodological and pedagogical innovations in higher education from the perspective of collaborative governance. Practice has proved that the teaching of aerobics helps to promote the healthy development of students. Through continuous practice, it can improve students' physical, psychological and aesthetic qualities, as well as self-confidence and expressiveness. At the same time, the mutual coordination between different courses should be strengthened to optimize the teaching mode of colleges and universities. Literature [13] provides a framework for the adoption of cloud computing in Jordanian higher education institutions by modifying the Diffusion of Innovations theory, the Technology Acceptance Model, and the Technology, Organization, and Environment framework. In order to better understand the factors affecting the adoption of cloud computing in the context of Jordanian higher education institutions, a framework for the quality of the techno-organizational environment for cloud computing adoption is provided, which is based on the underlying theories and the proposed model. The study aims to address the issue of cloud computing adoption in higher education institutions by proposing a new framework that aims to increase awareness of cloud computing factors and a roadmap for the adoption process.

Literature [14] suggests that reconfiguring the space for dialogue and experiencing a culture of collaboration and sustainability in higher education institutions can unleash change, break down organizational silos, reduce resistance, and engage academics in co-developing institutional strategies. Literature [15] aims to analyze the main challenges faced by two business schools and one higher education institution, when implementing ESD. In addition, an attempt was made to identify facilitating factors that would help minimize or eliminate the barriers faced by these institutions when implementing ESD. A descriptive qualitative research methodology was used and a multiple case study was utilized as a research strategy. Data were collected through interviews with individuals responsible for the ESD process in the research institutions and analyzed through content analysis techniques.

Music is the common language of mankind, music learners and practitioners need to promote the prosperity of music culture through valuable labor, and should contribute to the sustainable development of cultural and creative industries. This paper guides the transformation of scientific research, social service and cultural inheritance and innovation through the transformation of talent cultivation mode. The SPR teaching model is constructed from three teaching characteristics, i.e., the subjectivity of students, the practicability of the course and the research of the content. Three teaching processes, i.e. independent course selection, classroom practical teaching and inquiry-based post-course reflection. Three teaching objectives, i.e., to cultivate independent decision-making ability, application practice ability and scientific research ability, and other three dimensions to construct the framework system of SPR teaching model, and apply the model to the specific course teaching process. A fuzzy evaluation model was established, and the influence of teaching reform on contemporary college students was obtained by assigning weights according to expert assessment, indicating the necessity of music teaching reform.

2. Transformation of teaching mode oriented to the development of enterprise culture industry

2.1 The baseline for applied transformational development in universities and colleges

Modern universities have four basic functions, namely, talent cultivation, scientific research, social service and cultural inheritance and innovation, which are interdependent and mutually reinforcing, and jointly promote the long-term development of general institutions of higher education [16]. Through the transformation of teaching mode to promote the transformation of talent cultivation mode, the transformation of talent cultivation mode to drive the transformation of scientific research, social service and cultural heritage and innovation [17]. At the same time, driven by the transformation of teaching mode, the transformation of scientific research, social service, cultural inheritance and innovation and the transformation of talent cultivation mode as the kernel of mutual influence and mutual promotion, with interactivity and reversibility between them. The interactive mechanism of the transformation of talent cultivation mode in colleges and universities is shown in Figure 1.

The transformation of the teaching mode should be transformed from theory-led to theory and competence-oriented, and the teaching content should reflect the latest scientific and technological achievements in the field of application of the discipline and the requirements of the frontier of the post according to the needs of the market. Teaching methods should be transformed from passive learning to active learning, with students as the main body, and teaching means should be diversified, making full use of local resources, taking the road of combining industry, academia and research, and strengthening school-enterprise cooperation and school-local cooperation. These transformations can only enter the practice of talent cultivation through the micro teaching process. That is, they should be reflected from the specific course teaching process. In the exploration and practice of the transformation of teaching mode, we should gradually expand the right of students to independently choose their majors and courses, expand the autonomy of students' learning, implement student-centered inspirational, cooperative and participatory teaching, build a talent cultivation process led by the improvement of practical ability, and establish an applied technical and skillful talent cultivation mode of integration of industry and education and collaborative education.
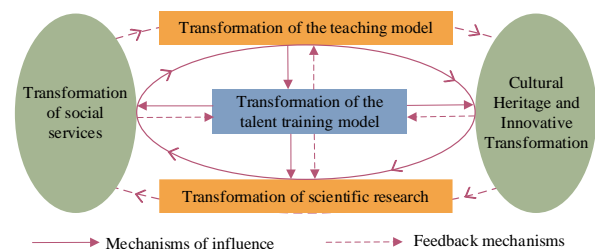

Figure. 1 Interactive mechanism of talent cultivation mode transformation in universities

Through the transformation of talent cultivation mode, the transformation of scientific research, social service and cultural inheritance and innovation will be guided. As far as the transformation of scientific research is concerned, it should serve the transformation of talent cultivation through

the top and the ground, i.e., to carry out basic research work through high-level scientific research projects, to support the theoretical construction of key disciplines and special disciplines, to drive the development of professional groups, and to provide theoretical support for the cultivation of talents [18]. At the same time, colleges and universities should rely on disciplines and specialties for society and the market to set up a for-profit service organization, in order to carry out a large number of applied project research, to provide a practical platform for the training of talents, to achieve both the training of talents and local economic and social development of the double effect [19]. As far as social service transformation is concerned, it is necessary to recommend the cultivated applied talents to the society to be transformed into a think tank and practitioner for promoting economic and social development, and adopt third-party evaluation to scientifically assess the effect of talent service to the society, and feedback the evaluation results to the higher education institutions of talent cultivation as the practical basis for the transformation of talent cultivation mode [20]. In addition, social service transformation should be realized through the transformation of scientific research results and other ways. In terms of cultural inheritance and innovation, from the perspective of the development of universities themselves, the connotation characteristics of university culture based on the development of applied transformation should be established, so that the culture can not only show the essence of university culture, but also serve the whole process of talent cultivation, so that the cultivated talents can be grateful to their alma mater, publicize their alma mater, and give back to their alma

mater through cultural symbols [21]. From the perspective of universities serving local cultural development, local cultural research centers or local cultural construction think tank alliances should be set up to excavate, organize, research, publicize and pass on local culture, as well as provide intellectual support for local cultural construction. Overall, although talent training, scientific research, social service and cultural heritage and innovation have clear connotations and functions, there exists a very close connection among them, and their transformation is based on the transformation of the teaching mode, which constitutes a comprehensive integration of the applied transformation of colleges and universities, and jointly serves the applied transformation and development of colleges and universities.

2.2 SPR teaching model

SPR teaching mode is mainly based on the development of university application transformation and put forward, its teaching concept and basic ideas follow the laws of higher education and the growth of talents, both reflecting the traditional teaching mode. It also emphasizes student-oriented, focusing on the cultivation of college students' independent decision-making ability, application practice ability and scientific research ability. The formation stages of SPR teaching model are shown in Figure 2.The formation of SPR teaching model has roughly gone through four stages: conception, preliminary proposal, basic formation and finalization. Each stage is refined and debugged after teaching practice, peer exchanges and student feedback to enhance the practical foundation of the teaching model.
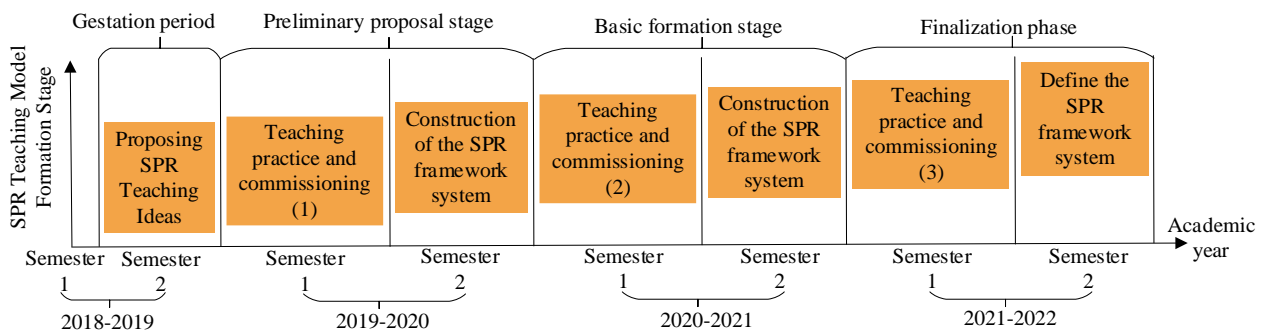

Figure. 2 Formation Stage of SPR Teaching Mode

The construction of the framework system of SPR teaching mode mainly centers on the three main characteristics of students' subjectivity, the practical nature of the course and the research nature of the content to show the teaching process and achieve the expected teaching goals. The framework system of SPR teaching mode is shown in Figure 3. The teaching process is centered around the characteristics of subjectivity, which is mainly shown in:

(1) Teachers of the course build a series of course libraries in combination with the revised talent cultivation program based on the development of applied transformation of universities, and then set up the teaching content available for students to choose and form a content library in combination with the syllabus and teaching plan of each course.

(2) After students independently complete the online selection of the courses they are interested in, the content library will be provided to the students in the first official teaching class by the teachers for them to select the contents they are interested in.

(3) Determine the final teaching content according to the number of votes for the selected content, so as to further improve the curriculum teaching plan and prepare music teaching lesson plans.

Through this teaching process, it can be better oriented to the development of the enterprise in the teaching process, and cultivate students' independent judgment and decision-making ability.
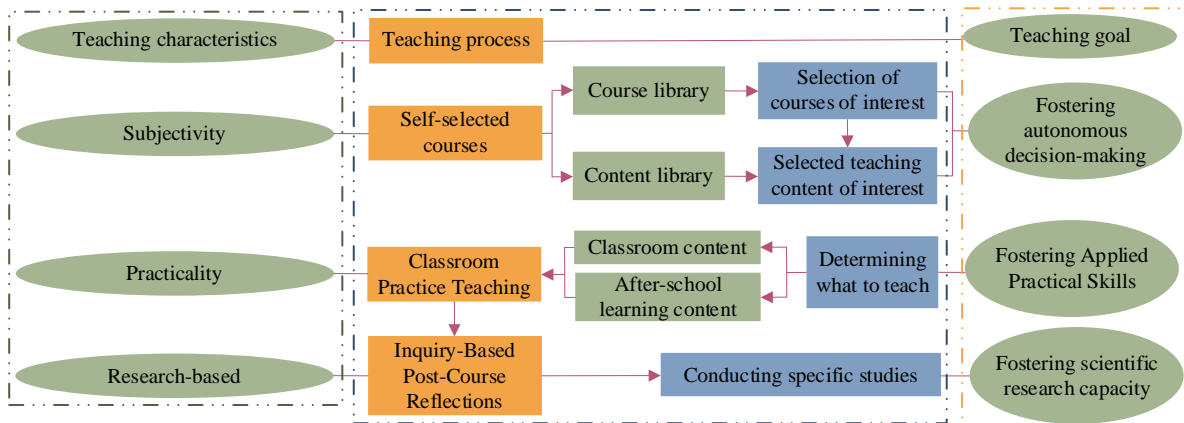
Figure. 3 Framework System of SPR Teaching Mode

3. Reform program for music teaching in colleges and universities

3.1 Classroom teaching process

Before constructing a model for evaluating the quality of music classroom teaching in colleges and universities, it is necessary to have a basic understanding of the process of classroom teaching, its constituent factors, and the relationship between the factors. The process of college music teaching is shown in Figure 4. Music classroom teaching in colleges and universities is essentially an overlap between the teaching process of teachers and the learning process of students, or classroom teaching is the process of interaction between teachers' teaching and students' learning. Thus, the effects of classroom teaching should be described and evaluated from two perspectives-both from the perspective of teachers' teaching and from the perspective of students' learning. This understanding of the nature of classroom teaching is a good reflection of the interactive-developmental view of teaching and learning. The process of classroom teaching, from both the teacher's and the student's point of view, can be divided into three stages: preparation, implementation, and reward. The main factors included in the whole teaching process are students, teachers, teaching content and teaching environment. In an effective teaching and learning process, these four types of factors should have their respective roles and interact with each other.
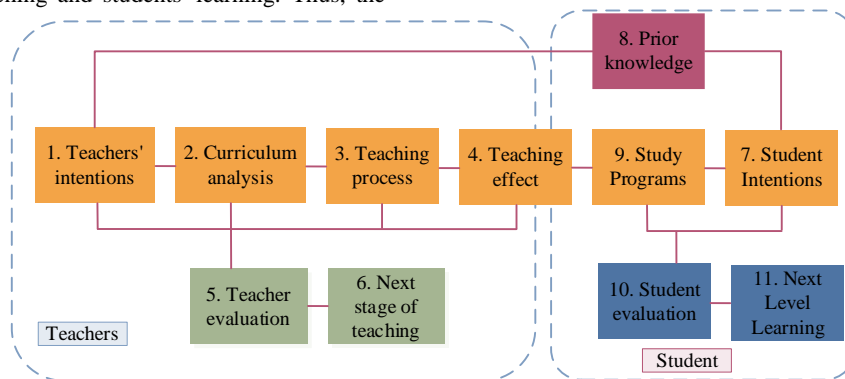

Figure. 4 Music Teaching Process in Universities

Students are the main body of the teaching process and can generate and develop on their own initiative based on their existing knowledge reserves and through interaction with the teacher, the teaching content and the teaching environment. Teachers are the organizers, guides and facilitators of classroom teaching, not just the transmitters and instillers of knowledge. Therefore, it is necessary to provide students with appropriate, adequate and effective teaching content as much as possible during the whole music teaching process and create a teaching environment suitable for students' development in order to promote students' development. Music teaching content is a carrier of knowledge, and must present an interactive posture with teachers and students in order to be conducive to the development of students and to promote the smooth implementation of the teaching process. The teaching environment refers to both the material basis of teaching activities, i.e. the hard environment. It also refers to the spiritual elements of the teaching process, i.e. the soft environment. Therefore, the teaching environment is part of the whole teaching process, which can promote the interaction and generation between teachers, students and teaching content

3.2 Factors affecting pedagogical reform

In the fuzzy evaluation of the influencing factors of college music teaching, the first step should be analyzed to find the factor set, the judgment set and the fuzzy evaluation matrix. According to the analysis of the current situation of music teaching in colleges and universities, the teaching effect can be divided into four grades, i.e. excellent, good, moderate and poor. The factors affecting the teaching effect can be divided into five main factors, including students' independent learning ability, the influence of teaching methods on students, the applicability of teaching materials, the advancement of assessment methods and the evaluation of the society.

From this, it can be seen that the judgment set is:

$$V = \{v_1, v_2, v_3, v_4\} \qquad ?? \qquad (1)$$

Where, v_1 represents grade excellent, v_2 represents grade good, v_3 represents grade medium and v_4 represents grade poor. The expression for the factor set is:

$$U = \{u_1, u_2, u_3, u_4\} \quad ?? \qquad (2)$$

Where, u_1 denotes learning ability, u_2 denotes the degree of teaching influence, u_3 denotes the degree of applicability of teaching materials, and u_3 denotes the degree of advanced assessment methods.

The value of each factor in the factor set can be determined according to the affiliation function corresponding to each factor, or by the assessment of experts. In this paper, we use a survey to determine the value of each factor from the data. In order to illustrate the necessity of music teaching reform, two classes, the supervisory class and the geomancy class, were sampled. The supervisory class emphasizes theoretical teaching and adopts the traditional mode of teaching in colleges and universities. The Jisui class emphasizes students' thinking and practical ability, and adopts the SPR teaching mode oriented to enterprise development. According to the data statistics, the ratio of each single factor can be obtained, and the fuzzy set of each single factor judgment before the reform of college music teaching is:

$$R_1 = \{0.15, 0.2, 0.4, 0.25\} \quad ?? \quad (3)$$

$$?? \, R_2 = \{0.1, 0.3, 0.45, 0.15\} \quad ?? \quad (4)$$

$$?? \, R_3 = \{0.2, 0.35, 0.3, 0.15\} \quad ?? \quad (5)$$

$$?? \, R_4 = \{0.15, 0.4, 0.3, 0.15\} \quad ?? \quad (6)$$

That is, the fuzzy judgment matrix of these four factors is:

$$R = \begin{bmatrix} R_1 \\ R_2 \\ R_3 \\ R_4 \end{bmatrix} = \begin{bmatrix} 0.15 & 0.2 & 0.4 & 0.25 \\ 0.1 & 0.32 & 0.43 & 0.15 \\ 0.25 & 0.35 & 0.25 & 0.15 \\ 0.15 & 0.4 & 0.3 & 0.15 \end{bmatrix} \quad ??(7)$$

Similarly, the fuzzy judgment matrix for the four factors after the teaching reform is:

$$R' = \begin{bmatrix} R'_1 \\ R'_2 \\ R'_3 \\ R'_4 \end{bmatrix} = \begin{bmatrix} 0.15 & 0.2 & 0.4 & 0.25 \\ 0.08 & 0.34 & 0.47 & 0.11 \\ 0.1 & 0.4 & 0.4 & 0.1 \\ 0.18 & 0.42 & 0.35 & 0.05 \end{bmatrix} \quad ??(8)$$

According to the experts' assessment, the weights of these four factors in the comprehensive fuzzy judgment are:

$$?? \, A = (a_1, a_2, a_3, a_4) = (0.5, 0.2, 0.08, 0.22) \quad ??(9)$$

The evaluation of traditional teaching can be obtained according to the principle of fuzzy comprehensive judgment, which can be obtained by programming in MATLAB:

$$?? \, B = A \cdot B = (0.148, 0.258, 0.372, 0.2) \quad ??(10)$$

New methods of teaching were evaluated as:

$$?? \, B' = A \cdot R' = (0.1386, 0.2924, 0.403, 0.166) \quad ??(11)$$

After the reform of music teaching oriented to the development of the business industry in the middle, there is a significant change in the size of the impact on students, in which the value of the evaluation factor of the superior and inferior students relatively decreases. It means that the new teaching method after the reform has less influence on them, which is because the superior and inferior students have little change in their self-motivation in practical learning, and they are almost balanced in terms of theory. While the good and intermediate students are affected by many external factors in terms of conscientiousness and self-confidence, the music teaching reform is favorable to the development of students. Therefore, the teaching reform is favorable to improve the overall teaching quality, and the enterprise development-oriented teaching reform is necessary for music teaching in colleges and universities.

3.3 Evaluation of the effectiveness of teaching reform

The student grades can be categorized into four grades, i.e., excellent, good, moderate, and poor. Initial learning status quantities for both classes:

$$?? \, Z(\theta_1) = \left(\frac{3}{101}, \frac{13}{101}, \frac{70}{101}, \frac{15}{101} \right) \quad ??(12)$$

$$?? \, Z(\theta_2) = \left(\frac{17}{75}, \frac{28}{75}, \frac{24}{75}, \frac{6}{75} \right) \quad ??(13)$$

Where, $Z(\theta_1)$ denotes the initial learning state of the students in the supervision class and $Z(\theta_2)$ denotes the initial learning state of the students in the geomancy class. Similarly the amount of learning state of two classes in the second semester is:

$$?? \, Z'(\theta_1) = \left(\frac{8}{101}, \frac{14}{101}, \frac{50}{101}, \frac{29}{101} \right) \quad ??(14)$$

$$?? \, Z'(\theta_2) = \left(\frac{10}{75}, \frac{27}{75}, \frac{37}{75}, \frac{1}{75} \right) \quad ??(15)$$

This yields the learning state transfer angles for the supervisory and geosynthesis classes, respectively:

$$\alpha_1 = \frac{Z(\theta_1) \cdot Z'(\theta_1)}{|Z(\theta_1)| \times |Z'(\theta_1)|} = 0.9476$$

?? ??(16)

$$\alpha_2 = \frac{Z(\theta_2) \cdot Z'(\theta_2)}{|Z(\theta_2)| \times |Z'(\theta_2)|} = 0.9455$$

?? ??(17)

The learning state transfer angle of the supervisory class is greater than that of the Dizui class, which indicates that the Dizui class has better learning stability with the new teaching model. Similarly, the transfer matrices of vocal performance levels of the two classes in the 2022 school year are:

$$X_1 = \begin{pmatrix} 2 & 1 & 0 & 0 \\ 3 & 3 & 7 & 0 \\ 3 & 10 & 40 & 17 \\ 0 & 0 & 3 & 12 \end{pmatrix}$$

?? ??(18)

$$X_2 = \begin{pmatrix} 7 & 5 & 5 & 0 \\ 3 & 15 & 10 & 0 \\ 0 & 7 & 17 & 0 \\ 0 & 0 & 5 & 1 \end{pmatrix}$$

?? ??(19)

This leads to the rank transfer probability matrices, respectively:

$$P_{\text{receive}} = \begin{pmatrix} \dfrac{2}{3} & \dfrac{1}{3} & 0 & 0 \\ \dfrac{3}{13} & \dfrac{3}{13} & \dfrac{7}{13} & 0 \\ \dfrac{3}{70} & \dfrac{1}{7} & \dfrac{4}{7} & \dfrac{17}{70} \\ 0 & 0 & \dfrac{1}{5} & \dfrac{4}{5} \end{pmatrix}$$

?? ??(20)

$$P_{\text{ground}} = \begin{pmatrix} \dfrac{7}{17} & \dfrac{5}{17} & \dfrac{5}{17}s & 0 \\ \dfrac{3}{28} & \dfrac{15}{28} & \dfrac{5}{14} & 0 \\ 0 & \dfrac{7}{24} & \dfrac{17}{24} & 0 \\ 0 & 0 & \dfrac{5}{6} & \dfrac{1}{6} \end{pmatrix}$$

?? ??(21)

The probability transfer weight vectors for the two classes are:

$$P_1 = (p_1, p_2, p_3) = \left(\frac{1}{3}, \frac{7}{13}, \frac{17}{70} \right)$$

?? ??(22)

$$P_2' = (p_1', p_2', p_3') = \left(\frac{10}{17}, \frac{5}{14}, 0 \right)$$

?? ??(23)

From this it follows:

$$\overline{p_1} = \frac{p_1 + p_2 + p_3}{3} = 0.3716$$

?? ??(24)

$$\overline{p_2} = \frac{p_1' + p_2' + p_3'}{3} = 0.3151$$

?? ??(25)

According to the probability transfer variance calculation method combined with MATLAB software can be obtained:

$$D(P_1) = 0.0153$$

?? ??(26)

$$D(P_2) = 0.01586$$

?? ??(27)

It can be seen that $D(P_2) > D(P_1)$, the students with lower grades in the ground-by-ground class fluctuate more, the higher the probability of grade increase. In summary, it can be seen that the supervisory class in the learning stability and probability of transfer volatility are worse than the ground by the class, indicating that the teaching reform is beneficial to students, the results of this paper are consistent with the results of the fuzzy evaluation, so the music teaching reform is feasible and necessary.

4. Analysis of the effect of reforms oriented to the development of corporate culture industry

4.1 Experimental background

This experiment will be based on the SPR teaching model, oriented to the development of corporate culture industry, combined with the characteristics of the music discipline to carry out research and practice. The object of practice is selected as the main course of the vocal music specialty offered by the School of Music of W University in A city. Teacher H has been engaged in the teaching of voice course for 9 years, with solid subject knowledge, rich teaching experience, and high enthusiasm for the use of information technology to optimize and change the teaching. The course was taught to 81 third-year undergraduate students majoring in vocal studies at the college, who had a good foundation in music.

The experiment was carried out using the equal-group before-and-after measurement and calibration experimental research method, designing the experimental group and the control group, with 40 students in the experimental group and 41 students in the control group, and the overall design of the experiment is shown in Table 1. The experimental group and control group were taught vocal music courses for one semester, and the weekly lesson time for both classes was 4 hours, 40 minutes per lesson. The experimental group was taught using the SPR teaching mode, in which the teaching was carried out in a smart classroom and provided with multistructured teaching resources. In the control group, the normal teaching mode was adopted, in which the teaching was carried out in the traditional multimedia classroom. In order to reduce the influence of irrelevant variables on the experimental effect, both the experimental group and the

control group were taught by the same teacher, but in the experimental group, the instructional design was designed by the teacher's team based on the SPR teaching model, and then the teaching was carried out by the teaching teacher, Teacher J. In the control group, the design was carried out by the music teacher of the class, and then the teaching was carried out by the teaching teacher, Mr. J.

Table 1 Overall Design of the Experiment

ClassLearning durationLearning contentTeaching modelLecturerExperimental group4 weeksVocal music courseOrdinary teaching typeTeacher HControl group4 weeksVocal music courseSPR teaching modeTeacher H	Learning durationLearning contentTeaching modelLecturerExperimental group4 weeksVocal music courseOrdinary teaching typeTeacher HControl group4 weeksVocal music courseSPR teaching modeTeacher H	Learning contentTeaching modelLecturerExperimental group4 weeksVocal music courseOrdinary teaching typeTeacher HControl group4 weeksVocal music courseSPR teaching modeTeacher H	Teaching modelLecturerExperimental group4 weeksVocal music courseOrdinary teaching typeTeacher HControl group4 weeksVocal music courseSPR teaching modeTeacher H	LecturerExperimental group4 weeksVocal music course
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4.2 Analysis of the SPR teaching program

In the process of music teaching practice, two questionnaire surveys were conducted on the selected students regarding whether they could accept and adapt to the SPR teaching mode, whether they thought that the SPR teaching mode could improve their practical ability, whether they supported the SPR teaching mode and whether they thought that the SPR teaching mode was worth popularizing, etc. Table 2 shows the effect of the application of the SPR teaching mode, in which the validity rate of the recovered questionnaires was the validity rate of the recovered questionnaires is 100%.

In the questionnaire, seven survey questions were set, which are:

Question 1: In the course of the class, do you notice or experience the teacher's use of SPR teaching mode?

Question 2: Can you understand the SPR teaching model through the teacher's lecture and introduction?

Question 3: Do you think the SPR teaching model can improve the practical ability of your classmates?

Question 4: Can you adapt to the SPR teaching mode?

Question 5: Do you support the SPR teaching mode proposed by the teacher?

Question 6: Do you think it is worthwhile to promote the SPR teaching mode?

Question 7: Do you have any other more opinions and suggestions about the SPR teaching mode?

Table 2 SPR Teaching Mode Application Effect Survey Form

Number of questionnaires distributedNumber of questionnaires distributed/copyNumber of questionnaires collected/copyQuestionnaire response rateThe efficiency of the collected questionnairesThe first second semester of the 2020-2021 academic	Number of questionnaires distributed/copyNumber of questionnaires collected/copyQuestionnaire response rateThe efficiency of the collected questionnairesThe first second semester of the 2020-2021 academic year878294%100%The second semester of the 2021-2022 academic	Number of questionnaires collected/copyQuestionnaire response rateThe efficiency of the collected questionnairesThe first second semester of the 2020-2021 academic year878294%100%	Questionnaire response rateThe efficiency of the collected questionnairesThe first second semester of the 2020-2021 academic year878294%100%	The efficiency of the collected questionnairesThe first second semester of the 2020-2021 academic year878294%100%The second semester of the 2021-2022 academic year5959100%100%

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The second semester of the 2021-2022 academic year5959100%100%	5959100%100%	59100%100%	100%100%	100%

In the two questionnaire surveys, the support rate of SPR teaching mode is shown in Figure 5. In both questionnaire surveys, the support rate of students for SPR teaching mode is high and increasing, from 89% in the first time to 97% in the second time, up 9%. Meanwhile, students' understanding and adaptation of SPR teaching mode has been increasing, and more students support the promotion of SPR teaching mode, with its support rate rising from 85% in the first time to 97% in the second time. These changes show that students expect teachers to reform and innovate in teaching mode in the context of application transformation, and expect more innovative and student-favorite teaching modes to be developed, applied and promoted in order to better improve their comprehensive literacy. However, some students put forward pertinent opinions and suggestions on further improving and perfecting the SPR teaching mode in question 7 of the questionnaire, for example, some students suggested that the mode should be formed into a theoretical system and be promoted in some courses of other second-level colleges, while others suggested that the proportion of classroom practice teaching hours should be increased so that more students could have the opportunity to take part in the classroom practice teaching, and others suggested that the proportion of classroom practice teaching hours should be increased so that more students could have the opportunity to participate in classroom practice teaching. Some students also suggested that interactive discussions should be added to the content of the teacher's lectures.
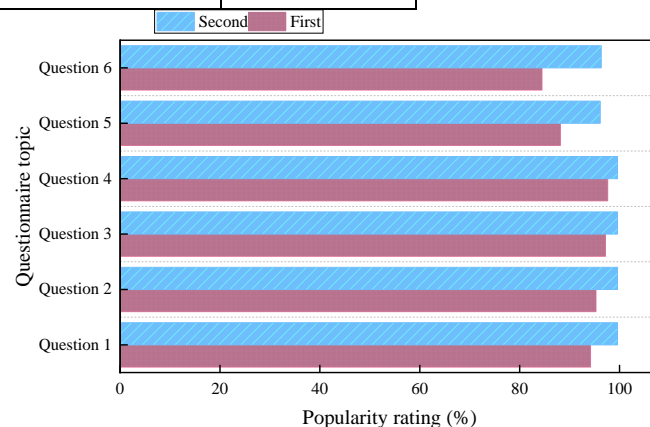

Figure. 5 Support rate of SPR teaching mode

4.3 Analysis of the Effectiveness of Music Teaching in Colleges and Universities

The experimental group and learners' deep learning situation and learning ability pre- and post-tests were compared, and the deep learning and learning ability comparisons are shown in Figure 6. The experimental group is shown in Fig. 6(a), and the learners in the experimental group have significantly improved their performance on several dimensions. At the pretest, the learners' average scores were 3.005, 3.07 (, 3.17, 3.257, 3.17, and 3.50, respectively, while at the posttest, these average scores rose to 4.14, 4.14, 4.15, 4.30, 4.25, and 4.45, respectively. This suggests that on multiple dimensions such as learning engagement, deep learning strategies, autonomous decision-making ability, practical ability, and applied innovative research ability and many other dimensions, the performance of learners in the experimental group has been significantly improved.

In the control group, as shown in Figure 6(b), in the dimension of deep learning motivation, the mean of the control group learners was 2.83 in the pre-test and 2.89 in the post-test. In the dimension of learning engagement, the mean of the control group learners was 2.88 in the pre-test and 2.9

in the post-test. Learners in most of the dimensions showed a slight improvement in the post-test, especially in the dimension of deep learning strategy and innovative research ability that showed significant growth. It shows that the study program has a positive impact on the development of learners' general competence, but the learners in the control group did not show a significant increase in deep learning skills.

(a) Experimental group
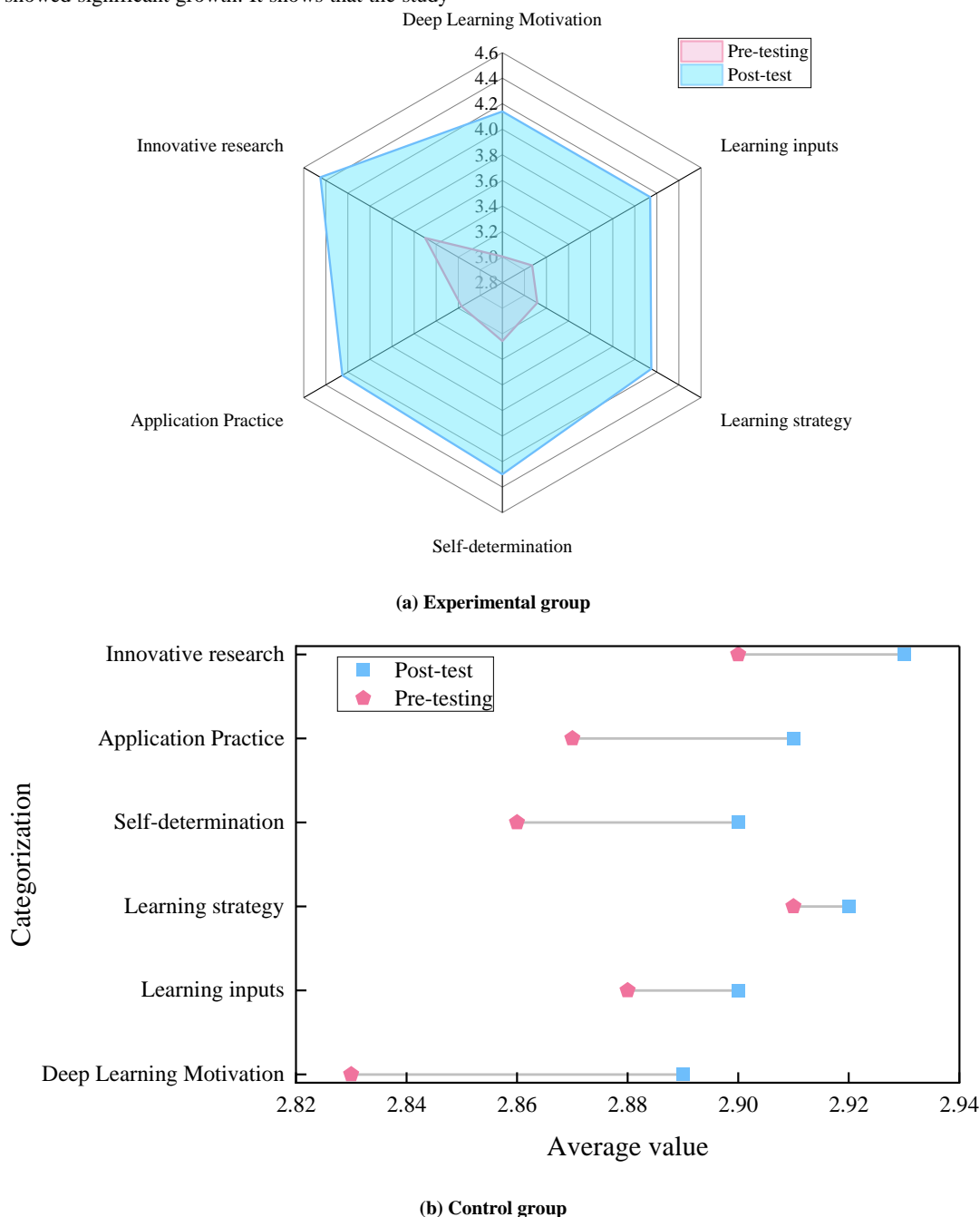

(b) Control group

Figure. 6 Comparison of Deep Learning and Learning Ability

The interactive behaviors of college music classroom teaching in the experimental and control groups were analyzed, and Table 3 shows the statistics of classroom interactive behaviors. In the experimental group, teacher verbal behavior accounted for 41.01% of the desired coding behavior, student verbal behavior 31.72%, technology use behavior 24.25%, and silence behavior 3.03%. In the control group, teacher verbal behavior accounted for 60.20% of the desired coding behavior, technology use behavior 18.98%, student verbal behavior 15.31%, and silence behavior 5.51%. From the learners' feedback, comparing the interview feedback from the learners in the control group, the learners recognized the teaching process of the SPR teaching model more, the teaching methods were more diversified, the technology empowered learning, and the learning atmosphere was better. The learners' experience is better, and the development of corporate culture is oriented to favorably support the development of learning activities. In terms of disciplinary literacy, learners' disciplinary literacy has been improved during the learning process, their understanding of music has been deepened, their innovative thinking and inquiry ability

have been improved, and their scientific attitude has been effectively cultivated.

Table 3 Statistical Table of Classroom Interaction Behavior

Behavioral categoriesExperimental group frequencyControl group frequencyPercentage of experimental groupControl group percentageTeacher language behavior20329540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior15273.03%	Experimental group frequencyControl group frequencyPercentage of experimental groupControl group percentageTeacher language behavior20329540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior15273.03%5.51%Technology usage behavior1209324.25%18.98%	Control group frequencyPercentage of experimental groupControl group percentageTeacher language behavior20329540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior15273.03%5.51%Technology usage behavior1209324.25%18.98%	Percentage of experimental groupControl group percentageTeacher language behavior20329540.01%60.20%Student language behavior1577531.72%	Control group percentageTeacher language behavior20329540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior1527
Teacher language behavior20329540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior15273.03%	20329540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior15273.03%5.51%Technology usage behavior1209324.25%18.98%	29540.01%60.20%Student language behavior1577531.72%15.31%Silent behavior15273.03%5.51%Technology usage behavior1209324.25%18.98%	40.01%60.20%Student language behavior1577531.72%	60.20%Student language behavior1577531.72%15.31%Silent behavior1527
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Technology usage behavior1209324.25%18.98%	1209324.25%18.98%	9324.25%18.98%	24.25%18.98%	18.98%

5. Discussion

Music teaching in colleges and universities will be more closely integrated with the music industry, through cooperative projects, internships and other means, so that students can gain a deeper understanding of the operation mechanism of the industry, and cultivate students to become market-conscious and commercially minded music talents. The corporate culture industry is an important part of the cultural and creative industries, and the reform of music teaching in universities will provide a steady stream of talents to support the development of the cultural and creative industries and promote the prosperity and growth of the industry. Through the convergence with the international music industry, the introduction of advanced music industry concepts and technologies, the cultivation of music talents with international competitiveness, and the promotion of China's music industry in the international arena of influence and status.

6. Conclusion

In this paper, we will systematically explain the proposal and formation of SPR teaching mode, connotation and characteristics, framework system and application scope. Practice shows that in the experimental group, the post-test mean value of learners' deep learning motivation is 4.14, the post-test mean value of learners' commitment is 4.14, the post-test mean value of learners' deep learning strategy is 4.15, the post-test mean value of learners' self-determination

ability is 4.30, the post-test mean value of learners' ability to use practice is 4.25, the post-test mean value of learners' innovation and research ability is 4.45. Under the guidance of the SPR teaching model in colleges and universities, the classroom teaching activities have been improved. 4.45. Under the guidance of the SPR teaching model of college music, the classroom teaching activities have been effectively improved, which greatly promotes the cultivation of learners' deep learning ability, and also promotes the change of the classroom teaching mode to a certain extent. This attempted exploration of university music teaching reform program oriented to the development of enterprise culture industry provides an effective teaching mode and practice path for the cultivation of composite applied talents, helps to promote the in-depth integration of music teaching and industrial development, and lays a solid foundation for the sustainable development of the field of music education.

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