

# **Research on Mezzo-Soprano Teaching for First-Year Bachelor Students at Shandong University of Art in Shandong of China**

**Zhang Yunjia,  
Chutasiri Yodwised and Wasawat Phayakkakul**  
Bangkokthonburi University, Bangkok, Thailand  
Corresponding Author, E-mail: 180122998@qq.com

\*\*\*\*\*

## **Abstracts**

The purpose of this study was (1) to study the teaching method of mezzo-soprano vocal music, (2) to create a video of mezzo-soprano teaching, and (3) to use multi-media for teaching students. (4) to measure the results of teaching and evaluation for students' satisfaction for first-year bachelor students at Shandong university of art, Shandong province, China. This research used mixed method research and experimental study research. The experiment tool was the video mezzo-soprano teaching for first-year bachelor students at Shandong university of art. Total 13 weeks, 50 minutes to experiment per week. The researcher chooses 5 Students in first-year vocal music by purposive sampling—the research hypothesis: the high student. The post-test score will go up to 85% compared to the middle student's pre-test score. The post-test score will go up to 80% compared to the lower student's pre-test score. The post-test score will go up to 70 % compared to the pre-test score. The experiment tools passed the experts' checked for accuracy and conformity at 0.80.

The research results were: three tests used 13 video mezzo-soprano teaching instructional materials. Tests in the 5th, 10th, and 13th have 5 students with the same musical proficiency standards—a person who, out of all three tests, all had better grades. In the first test, the students scored low in singing skills, representing 80% of the total students, and middle scores represented 20% of the total students. Second-test students have better grades, resulting in the students scoring middle in singing skills, representing 80% of the total students, and lower scores representing 20% of the total students. The average score of students in the 13th week of the video mezzo-soprano teaching class was 87.80. The total scores most of the students scored in high students 100% on this test according to the research hypothesis.

**Keywords:** Mezzo-soprano; Mezzo-soprano teaching; Vocal music

## **Introduction**

Mezzo-soprano is literally deciphered as Mezzo in Italian. Soprano within the female voice, the run between Soprano (Soprano) and Alto (Alto) between, so-called mezzo, too known as Soprano. It includes a run of G3-A5. Vocal lines are often longer and more extensive than a soprano, with a thick, capable tall pitch and an especially full, adjusted voice within the center region.

In mezzo-soprano, the foremost consideration to the surface's wide, thick, shining tone quality, mezzo-soprano more consideration is wide and thick. The creation of the concept of

---

\* วันที่รับบทความ : 1 ธันวาคม 2565; วันแก้ไขบทความ 20 ธันวาคม 2565; วันตอบรับบทความ : 28 มิถุนายน 2566

Received: December 1, 2022; Revised: December 20, 2023; Accepted: June 28, 2023

mezzo-soprano is based on the creative execution of the refrain and the interest in multi-level singing impacts through the reverberation of distinctive sounds.

After that, in the development history of European vocal music, the mezzo-soprano part has experienced a tortuous development process. In the 19th century, with the further improvement of opera and vocal singing technology, the mezzo-soprano part gradually gained people's attention and was formally formed (Smith, 2022 : 98-99).

The singing of female singers in the early 19th century still retained the decorative singing style of the mezzo-soprano era. However, it already had a wide range (generally two or two and a half octaves). It is, therefore, common to see the female vocals cross over (Soprano singing Soprano or soprano singing soprano). In the first half of the 19th century, there were two compelling singers with a range of alto and Soprano. One of the mezzo-soprano singers, Pasta (G.Pasta, 1798-1865), changed the female voice only to sing high notes and superficial coloratura skills, successfully "Norma" (Norma, La Sonnambula, La Sonnambula) and other operas in the role and had a far-reaching influence (Peterson, 2012 : 7).

Human society in the 21st century will be more inclined to global integration and cultural diversity. We should create a guidebook of mezzo-soprano for Chinese students, take western art's essence, rely on national culture based on Chinese mass aesthetics, complete the docking of tradition and modernity, and take the road of diversity development. So that the mezzo-soprano singing art in the survival of development, in the development of prosperity (Hinkley, 2017 : 6).

## Research Objectives

1. To study teaching method of mezzo-soprano vocal music.
2. To create a video mezzo-soprano teaching.
3. To use multi-media for teaching students.
4. To measure the results of teaching and evaluation for students' satisfaction.

## Research Methodology

The research methodology in this research is qualitative and experimental study research that consists of document studies, interview, and teaching.

### 1. Criteria of key informant.

Criteria of the key informant: the key informant must meet with the following criteria:

- 1.1 Earned at least a master's degree in Vocal music.
- 1.2 Experienced teaching China singers' association at more than 10 years.
- 1.3 Experienced performing Chinese and international music at more than 10 years.

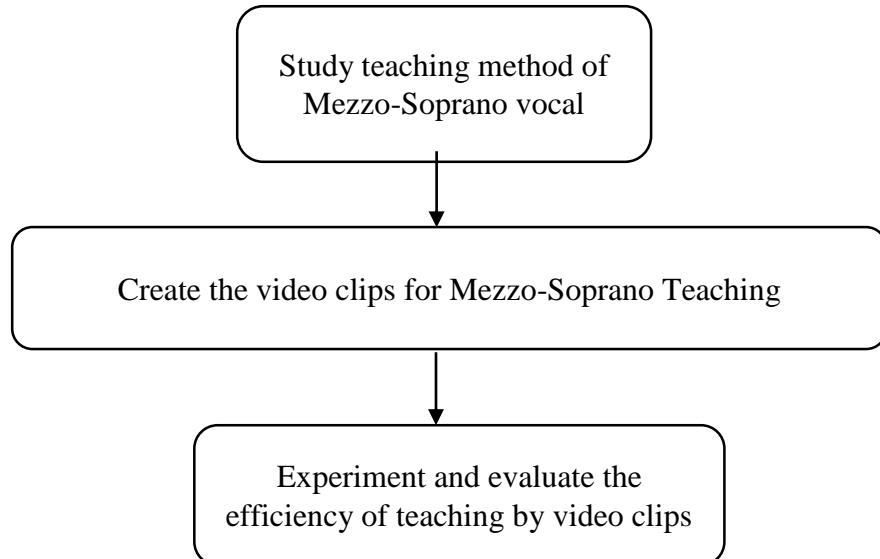
1.4 Experienced member of Musicians Association, research direction and main courses in university

### 2. Key informant.

- 2.1 Professor Dr. Shihui Wang, mezzo-soprano singer, China.
- 2.2 Professor Dr. Huifang Yan, Professor of mezzo-soprano, China.
- 2.3 Professor Dr. Qiuli Wang, Professor of soprano, China.

2.4 Professor Dr. David Sun, Professor of Opera and Dance Theater.

## Conceptual Framework



## Research Scope

### 1. Population.

The objective of this study is to study the mezzo-soprano 36 First-year students in vocal music at faculty of music, Shandong University of Arts in China.

### 2. Sample.

The researcher chooses 5 Student in first-year vocal music by purposive sampling as follow:

2.1 They must be first-year students at Shandong University in China.

2.2 They must have a basic of singing in high voice but unclearly in practice of mezzo-soprano singing techniques.

2.3 They must have knowledge that is in the context of the mezzo-soprano guidebook created by research and willingness to participate in this research.

### 3. Place.

Faculty of music, Shandong University of Arts in China.

## Research Findings

### 1) Studying teaching method of mezzo-soprano vocal music.

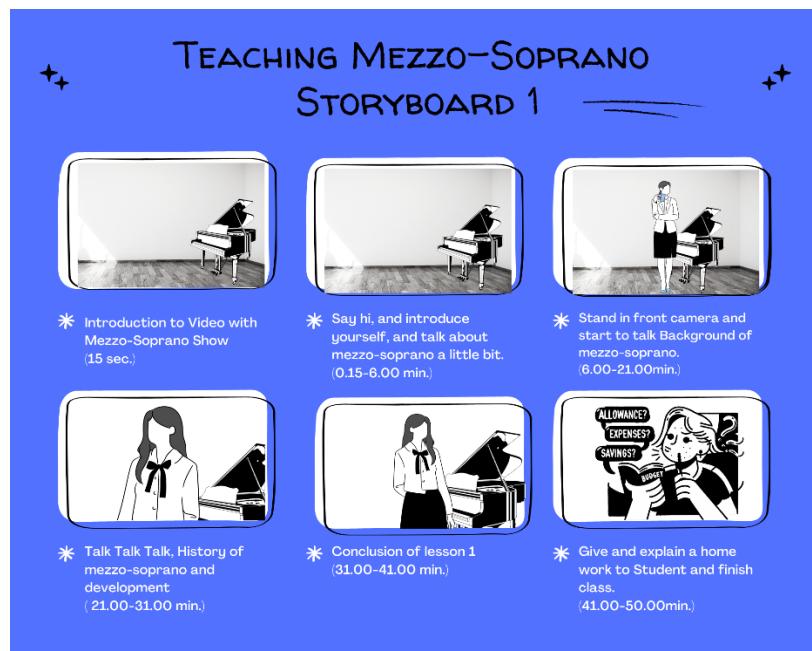
The researcher studied the principles of teaching and practicing mezzo-soprano vocal music from interviews with experts and studies from documents and textbooks of mezzo-soprano vocal music from the recommendation of four experts, from the studied of interview and document. It was found that students should learn mezzo-soprano vocal music singing skills in the background. History and development, posture and training a deep breath, opening a mouth when singing, lifting the root of the tongue, fluidity of mezzo-soprano breath, high

position, sound changing point smoothly, chest sound Area, clarity, stimulating learning enthusiasm and problem that should be avoided of mezzo-soprano vocal music singing.

## 2) The create a video mezzo-soprano teaching.

Furthermore, the researcher to conclusions as a framework for developing the mezzo-soprano vocal music teaching model as follows: The characteristics of mezzo-soprano vocal music teaching needed 6 features to follow a comment from the expert: (1) To update and improve course descriptions, (2) New method teaching: easy to understand and interesting and match the era during the COVID epidemic, (3) New multi-media for teaching in history, and development, posture and train a deep breath, open a mouth when singing, lifting the root of the tongue, fluidity of mezzo-soprano breath, high position, sound changing point smoothly, chest Sound Area, clarity, stimulate learning enthusiasm and problem that should be avoided of mezzo-soprano vocal music, (4) The mezzo-soprano test assessment criteria form for student in this era, (5) element of video: Show relationships, and add clarity, such as a summary from homework: Rhythm, posture, breathing, and (6) Other deemed appropriate, lighting, clothing.

After that, the researcher created a video mezzo-soprano vocal music with Comprehensive video mezzo-soprano teaching and learning music consisting of the following contents and processes: (1) the history and development of mezzo-soprano., (2) The posture and training a deep breath of mezzo-soprano, (3) The mouth when singing in mezzo-soprano., (4) The problem of lifting the root of the tongue., (5) The throat lifting in mezzo-soprano singing., (6) The fluidity of mezzo-soprano breath., (7) The high position of a mezzo-soprano. (8) The problem is that the mezzo-soprano has no treble. (9) The sound changing point smoothly. (10) The Chest Sound Area. (11) The Clarity of Mezzo-soprano. (12) Stimulate Learning Enthusiasm. (13) The Problem That Should Avoided. And Assessment of learning.



**Figure 1**, Example of script and storyboard writing. (Zhang Yunjia, 2022)

Moreover, the researcher has revised the lesson plan for mezzo-soprano vocal music according to the comments of various experts and brought it back to you for consideration and evaluation with a score of 0.80. The 13th lesson plan followed a comprehensive approach to being a musician and was determined according to the criteria recommended by experts. The researcher can conclude that 13 video clips for teaching mezzo-soprano this time be appropriate, as accuracy and features are good enough to be tested with 5 First-year students in vocal music at the faculty of music, Shandong University of Arts in China. Pr. China, but some things must be improved before they can be used. For example, 7. Appropriateness of font size. This is the item that gets the least score because the font size in some videos is too small, making the content difficult to understand, and the color of the text is too close to the background color. And 10. Appropriateness of style. The item has a lower total score than the previous item because the researcher needed to consider the change of color of the shirt, so it may cause repetition that makes the video clip uninteresting.

| Comment list  | Comment  |          |          |          | Total | Suggestion                                      |
|---|----------|----------|----------|----------|-------|---|
|   | Expert 1 | Expert 2 | Expert 3 | Expert 4 |       |   |
| 1. Consistency with the curriculum.                 | 1        | 1        | 1        | 1        | 1     |   |
| 2. Consistency with the nature of the subject.      | 1        | 0        | 1        | 1        | 0.75  |   |
| 3. Consistency with age of learners.                | 1        | 1        | 1        | 0        | 0.75  |   |
| 4. Consistency with current conditions and problem. | 1        | 1        | 1        | 1        | 1     |   |
| 5. Appropriateness for learner development process. | 1        | 1        | 1        | 1        | 1     |   |
| 6. Appropriateness of Content.                      | 1        | 1        | 1        | 1        | 1     |   |
| 7. Appropriateness of                               | 1        | 1        | 0        | -1       | 0.25  | The font size in some videos is too small which |

| Comment list                              | Comment   |          |          |          | Total       | Suggestion   |
|---|-----------|----------|----------|----------|-------------|--|
|   | Expert 1  | Expert 2 | Expert 3 | Expert 4 |             |  |
| font size.                                |           |          |          |          |             | can make the content difficult to understand and the color of the text is too close to the background color.             |
| 8. Appropriateness use of language.       | 1         | 1        | 0        | 1        | 0.75        |  |
| 9. Appropriateness to student's interest. | 1         | 1        | 1        | 1        | 1           |  |
| 10. Appropriateness of style.             | 1         | 0        | 1        | 0        | 0.5         | If there were some changes in the color of the shirts when shooting the video, it might make the video more interesting. |
| <b>Total.</b>                             | <b>10</b> | <b>8</b> | <b>8</b> | <b>6</b> | <b>0.80</b> |  |

**Table 1**, The result of Video qualification validity assessment by experts.

3) Using multi-media for teaching students.

The researcher can conclude that all three tests used 13 video mezzo-soprano teaching instructional materials. Tests in the 5th, 10th, and 13th have 5 students with the same musical proficiency standards—a person who, out of all three tests, all had better grades. In the first test, the students scored low in singing skills, representing 80% of the total students, and middle scores represented 20% of the total students.

| Score<br>Student | Assessment issues and Evaluation results 1 |         |            |        |            |           |       |        |        |      | Total (100) | Percentage (100) | $\bar{x}$ | SD.  |
|------------------|--|---------|------------|--------|------------|-----------|-------|--------|--------|------|-------------|------------------|-----------|------|
|                  | Intonation                                 | Posture | Expression | Steady | Accurately | Breathing | Mouth | Tongue | Throat | Body |             |                  |           |      |
| Student 1        | 5  | 6       | 5          | 6      | 4          | 7         | 8     | 5      | 6      | 4    | 56          | 56               | 5.6       | 1.26 |
| Student 2        | 6  | 8       | 4          | 5      | 2          | 6         | 5     | 5      | 3      | 6    | 50          | 50               | 5         | 1.69 |
| Student 3        | 7  | 8       | 7          | 7      | 8          | 7         | 8     | 9      | 5      | 4    | 70          | 70               | 7         | 1.49 |
| Student 4        | 8  | 5       | 6          | 4      | 5          | 2         | 5     | 5      | 4      | 7    | 51          | 51               | 5.1       | 1.66 |
| Student 5        | 7  | 6       | 5          | 6      | 5          | 5         | 5     | 4      | 6      | 2    | 51          | 51               | 5.1       | 1.37 |
| Total.           | 32   | 31      | 25         | 27     | 22         | 25        | 31    | 28     | 24     | 23   | 53.6        | 53.6             | 5.36      | 1.50 |

**Table 2**, Assessment issues and Evaluation results 1

So, the researcher modified the video to be more interesting and easier to understand. After that, the researcher conducted the second test. Students have better grades, from those who scored middle in singing skills, representing 80% of the total, and lower scores representing 20% of the total students.

| Score<br>Student | Assessment issues and Evaluation results 2 |         |            |        |            |           |       |        |        |      | Total (100) | Percentage (100) | $\bar{x}$ | SD.  |
|------------------|--|---------|------------|--------|------------|-----------|-------|--------|--------|------|-------------|------------------|-----------|------|
|                  | Intonation                                 | Posture | Expression | Steady | Accurately | Breathing | Mouth | Tongue | Throat | Body |             |                  |           |      |
| Student 1        | 7  | 8       | 8          | 8      | 8          | 8         | 8     | 9      | 8      | 9    | 81          | 81               | 8.1       | 0.87 |
| Student 2        | 8  | 9       | 8          | 7      | 9          | 8         | 9     | 7      | 9      | 7    | 81          | 81               | 8.1       | 0.87 |
| Student 3        | 9  | 8       | 6          | 8      | 7          | 9         | 9     | 8      | 7      | 8    | 79          | 79               | 7.9       | 0.99 |
| Student 4        | 9  | 8       | 7          | 8      | 9          | 8         | 9     | 8      | 8      | 8    | 82          | 82               | 8.2       | 0.63 |
| Student 5        | 9  | 9       | 9          | 9      | 8          | 7         | 9     | 8      | 9      | 9    | 86          | 86               | 8.6       | 0.69 |
| Total.           | 42   | 42      | 38         | 40     | 41         | 40        | 44    | 40     | 41     | 41   | 81.60       | 81.60            | 8.16      | 0.77 |

**Table 3**, Assessment issues and Evaluation results 2

In the last tests, the researchers improved the video until the results were satisfactory. In which all students got better grades until their results were at a high level respectively. The average score of students in the 13th week of the video mezzo-soprano teaching class was 87.80. The total scores most of the students scored in high students 100% on this test according to the

research hypothesis.

| Score<br>Student | Assessment issues and Evaluation of Summative test. |         |            |        |            |           |       |        |        |      | Total (100) | Percentage (100) | $\bar{x}$ | SD.  |
|------------------|---|---------|------------|--------|------------|-----------|-------|--------|--------|------|-------------|------------------|-----------|------|
|                  | Intonation  | Posture | Expression | Steady | Accurately | Breathing | Mouth | Tongue | Throat | Body |             |                  |           |      |
| Student 1        | 9   | 9       | 9          | 9      | 9          | 8         | 8     | 8      | 8      | 10   | 87          | 87               | 8.7       | 0.67 |
| Student 2        | 8   | 9       | 8          | 9      | 9          | 8         | 9     | 10     | 9      | 9    | 88          | 88               | 8.8       | 0.63 |
| Student 3        | 9   | 8       | 9          | 8      | 8          | 9         | 9     | 8      | 9      | 8    | 85          | 85               | 8.5       | 0.53 |
| Student 4        | 9   | 8       | 9          | 8      | 9          | 8         | 9     | 10     | 9      | 10   | 89          | 89               | 8.9       | 0.74 |
| Student 5        | 9   | 9       | 9          | 9      | 9          | 10        | 9     | 8      | 9      | 9    | 90          | 90               | 9.0       | 0.47 |
| Total.           | 44  | 43      | 44         | 43     | 44         | 43        | 44    | 44     | 44     | 46   | 87.80       | 87.80            | 8.78      | 0.61 |

**Table 4**, Assessment issues and Evaluation of Summative test

4) The measure of the results of teaching and evaluation for students' satisfaction.

The researcher can conclude the result from the hypothesis

(1) The High student. The post-test score will go up to 85% compared to the pre-test score.

(2) The Middle student. The post-test score will go up to 80% compared to the pre-test score.

(3) The lower student. The post-test score will go up to 70 % compared to the pre-test score.

The student's score from the first time that the student passed the criteria is only a low 20 % from the criteria set by the researcher. The researcher, therefore, improved the video until the second test had 80% percent of the students passing the criteria middle range. Only 20% of the students did not pass the middle criteria the researcher had set. After that, the researcher intends to improve the video of mezzo-soprano teaching so that the final test will make all students reach a high level, which the result of the students passed the criteria of 100%

Therefore, from the experimental results, all students had higher final post-test score assessment results according to the hypothesis.

| The compare of score |                     |                     |                               |                    |             |
|----------------------|---------------------|---------------------|-------------------------------|--------------------|-------------|
| Number of Student    | Pre-test 1<br>(100) | Pre-test 2<br>(100) | Total of<br>pre-test<br>(100) | Post-test<br>(100) | Pass / Fail |
| Student 1            | 56                  | 81                  | 68.5                          | 87                 | Pass        |
| Student 2            | 50                  | 81                  | 65.5                          | 88                 | Pass        |
| Student 3            | 70                  | 79                  | 74.5                          | 85                 | Pass        |
| Student 4            | 51                  | 82                  | 66.5                          | 89                 | Pass        |
| Student 5            | 51                  | 86                  | 68.5                          | 90                 | Pass        |
| Total                | 278                 | 409                 | 343.5                         | 439                |             |

The research hypothesis.

- 1) The High student. The post-test score will go up to 85% when compared with the pre-test score.
- 2) The Middle student. The post-test score will go up to 80% when compared with the pre-test score.
- 3) The lower student. The post-test score will go up to 70 % when compared with pre-test score.

**Table 5**, The compare of scores.

After that, the researcher can conclude a result of the satisfaction assessment of the efficiency of the video mezzo-soprano teaching with comprehensive student physiological and psychological development. After trials conducted in semester 1, between September-December 2022, a 50-minute-a-week totaled 13 weeks. From the satisfaction assessment results, the students gave the lowest score regarding the background music for the video of the mezzo-soprano teaching funny (3.58). But still in the high range. This may be because the students need to become more familiar with online singing lessons via video, which is learning singing as a lesson. In the classroom, until the outbreak of COVID-19, which caused teaching and learning to change from the classroom to online, it took much work to make the video background satisfy students on demand. The researcher, therefore, tried to develop teaching videos until all students were in high criteria. The area that received the highest evaluation scores is the interesting video of mezzo-soprano teaching (4.50). Due to the improvement of the video elements to be more interesting from the first time the student was tested whether it was color, light, or sound, resulting until the students had most satisfied with this aspect.

| Satisfaction of video  | Level $\bar{x}$  | SD.  |
|--|--|------|
| 1. The video of mezzo-soprano teaching covers content at the elementary level.       | 4.42   | 0.51 |
| 2. Video of mezzo-soprano teaching the difficulty of the sort.                       | 4.42   | 0.67 |
| 3. The language used in the video of mezzo-soprano teaching is easy to understand.   | 4.33   | 0.49 |
| 4. The fonts used in the video of mezzo-soprano teaching are clear and easy to read. | 4.08   | 0.79 |
| 5. The notes used in the video of mezzo-soprano teaching are clear and easy to read. | 3.75   | 0.86 |
| 6. The style of music for practice is varied.  | 4.16   | 0.90 |
| 7. The background music for the video of mezzo-soprano teaching is beautiful.        | 3.91   | 0.67 |
| 8. The background music for the video of mezzo-soprano teaching funny.               | 3.58   | 0.67 |
| 9. Interesting video of mezzo-soprano teaching.                                      | 4.50   | 0.52 |
| 10. Benefits from video of mezzo-soprano teaching.                                   | 4.11   | 0.44 |
| Total.   | 4.11   | 0.44 |
| <b>The level of satisfaction</b>   |  |      |
| 4.50-5.00  | The level of satisfaction with the video of mezzo-soprano teaching was at the highest level. |      |
| 3.50-4.49  | The level of satisfaction with the video of mezzo-soprano teaching was at the high level.    |      |
| 2.50-3.49  | The level of satisfaction with the video of mezzo-soprano teaching was at the middle level.  |      |
| 1.50-2.49  | The level of satisfaction with the video of mezzo-soprano teaching was at the low level.     |      |
| 1.00-1.49  | The level of satisfaction with the video of mezzo-soprano teaching was at the lowest level.  |      |

**Table 6**, The results of the satisfaction assessment of the efficiency of the video mezzo-soprano teaching.

## Discussion

A study of the principles of teaching mezzo-soprano vocal music revealed six key characteristics, along with video mezzo-soprano teaching, which focuses on giving students a variety of experiences, thinking, and creating their works, giving them a new style of music and mezzo-soprano vocal performance after school, of course, after experimenting with first-year students. It found that the evaluation results were better in all students, so the researcher reflected the knowledge and thoughts as follows:

“Our singers should take singing excellent Chinese works as the basis and make more efforts in the integration and coordination of character, voice, cavity, rhyme and singing techniques, and strive to sing the works that reflect the spirit of our Chinese nation with well-trained voice” (Lee, 2005 : 4).

Corresponds to New multi-media base on Chinese music technique “Video of mezzo-soprano vocal music for teaching (2022)” with the content: history and development, posture and training a deep breath, opening a mouth when singing, lifting the root of the tongue, fluidity of mezzo-soprano breath, high position, sound changing point smoothly, chest Sound Area, clarity, stimulate learning enthusiasm and problem that should be avoided of mezzo-soprano vocal music.

The creation of high-quality music works directly affects the direction of the public aesthetic taste, providing a fresh learning blueprint for vocal music teaching and enabling singers to show their wonderful singing talent fully (Yang & Hu, 2020 : 3).

Corresponds to the creation video mezzo-soprano vocal music with lesson plan mezzo-soprano music teaching and performance consisted of the following contents and processes: (1) history and development of mezzo-soprano., (2) The posture and train the deep breath of mezzo-soprano, (3) The mouth when singing in mezzo-soprano., (4) The problem of lifting the root of the tongue., (5) The throat lifting in mezzo-soprano singing., (6) The fluidity of mezzo-soprano breath., (7) The high position of a mezzo-soprano. (8) The problem is that the mezzo-soprano has no treble. (9) The sound changing point smoothly. (10) The Chest Sound Area. (11) The Clarity of Mezzo-soprano. (12) Stimulate Learning Enthusiasm. (13) The Problem That Should Avoided (Xiao & Ni, 2019 : 149-178).

Within the screening of test pointers, the figure examination comes about (cadence, timbre, sound escalated) of the common components of hip-hop development, and music is utilized as the pre-and post-test markers. The control test strategy was utilized to confirm the test theory. The sub-subject accomplishment test table was utilized as the test strategy, the video, and BPM Locator and BPM Counter music. The app was utilized as the estimation instrument, and the video and coordinate assessment strategy and the energetic time distorting calculation were utilized for estimation (Chen, 2019 : 2).

The concept of comprehensive musicianship was advanced as a demeanor and approach concept appropriate at all instructive levels: 1) The advancement of competencies in making music, performing music, and basic tuning in and investigation. 2) Involvement with the totality of musicals, styles-particularly those within the twentieth century and a wide assortment of non-Western styles-brought into a common outline of reference by the common components approach to terms and standards found in all music. 3) The integration of substance

and melodic encounters. 4) The students' dynamic inclusion within the application of concepts accentuating music-making and disclosure instead of on-schedule memorization.

The result of the student's score from the first time that the student passed the criteria is only a low 20 % from the criteria set by the researcher. The researcher, therefore, improved the video until the second test had 80% percent of the students passing the criteria middle range. Only 20% of the students did not pass the middle criteria the researcher had set. After that, the researcher intends to improve the video of mezzo-soprano teaching so that the final test will make all students reach a high level, which the result of the students passed the criteria of 100%

## Recommendation

### Theoretical Recommendation

The video mezzo-soprano vocal music teaching is still new in China; the researcher must review and write a lesson plan for other teachers to study and translate it into other languages to exchange with interested foreigners.

### Practical Recommendations

Video mezzo-soprano vocal music teaching practice has the principles of vocal music, but the broadening of concepts enhances the learner's experience skills, thus giving him more opportunities. Therefore, the study of music teaching concepts or teaching methods will enhance the skills of both teachers and students at the same time. Research on teaching method issues and developing music teaching will be able to answer questions or solve problems directly.

## References

Chen, T. (2019). *A study and Application of Countertenor-An Example of Oberon from Britten's Opera "A Midsummer Night's Dream"*. Taiwan: National Taiwan Normal University.

Hinkley, S. P. (2017). *Effects of Vibrato and Pitch-Varied Vocal Models on High School and Undergraduate Singers' Intonation, Intensity, and Use of Vibrato*. The Florida State University.

Lee, C. L. (2005). *Exert "Male falsetto singing" Research - From countertenor mentions*. Taiwan: Chinese Culture University.

Peterson, A. E. (2012). *Toward validation of an acoustic index of dysphonia severity*. The University of Utah.

Smith, N. T. (2022). *Kevin Volans-Kevin Volans, Lenguas de Fuego*. Louth Contemporary Music Society, LCMS20215. *Tempo*, 76 (299), 98-99.

Xiao, Y., & Ni, M. (2019). *The Shanxi Grand Theater: The "Renaissance" of Chinese Drama Land*. In Grand Theater Urbanism (pp. 149-178). Springer, Singapore.

Yang, X., & Hu, X. (2020). *The Social and Cultural Characteristics of Shanxi Ancient Drama Costumes*. Asian Social Science, 16 (3).