

Application of the Theory of Brainstorming in Visual Teaching of Music

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Abstract—Visual teaching is a teaching method or teaching tool that presents a clearer and more intuitive image of music works to students. Drawing on the theory of brainstorming, this paper explores the application of brainstorming, a brain stimulation method, in visual teaching of music. The main results are as follows: visual music teaching mainly improves music skills, cultivates music aesthetics, and enhances communicative competence. Once introduced to music class, the creative thinking method of brainstorming enables the teacher to train the divergent and creative thinking of students. During music teaching, brainstorming stimulates the learning interest, boosts the learning confidence, and cultivates the independent thinking of students. The research findings lay a theoretical basis for music course reform.

Keywords—visual teaching, teaching tool, theory of brainstorming, music skills, music aesthetics

1 Introduction

Music class is a good way to cultivate students' aesthetic taste and cultural qualities [1]. In music teaching, educators should enrich and rationalize the teaching methods and tools, pay attention to students' overall feeling of the music class and music teaching, and enable them to fully experience the charm of music as an art form [2, 3] visualization of music teaching is a psychological phenomenon of music produced based on synesthesia, and it contains a variety of music teaching methods [4]. In actual teaching process, music teachers actively attempt to give back the class to students, and apply more interesting music teaching methods to the students [5, 6].

The visual teaching of music class can stimulate students' interest in music and help them better understand and enjoy the music works, especially for students in lower grades [7]. After listening to music, some students can dance to the rhythm, and get a complete musical experience [8]. With the advancement and application of information technology, the visualization of music teaching has undergone big changes, visual expression tools are used more often to form concept maps, mind maps and other visual methods to help students understand music better [9]. Many factors can affect the visual teaching of music, such as the teacher's information technology skills and the visual teaching platforms and tools, etc. [10]. To carry out visual teaching in music class, it's

necessary to ensure that students can participate in the whole process autonomously, this is very helpful for learners to have a cognition of the learning content, thereby obtaining a better sense of self-efficacy [11, 12]. The visual teaching of music class also needs to take into account the interactivity of visual teaching, so that the teacher could communicate with students closer and make the music teaching activities more vivid and attractive [13].

The theory of brainstorming is called by many names such as the brain stimulation method, the multiple thinking method, and the free association method [14]. Brainstorming is not just a teaching method, but also a way of learning and sharing with unique value [15, 16]. Music teaching is a form of artistic activity of human, combining the characteristics of brainstorming with language teaching is a re-creation of human thinking and expression methods [17]. Music teaching is also a process containing teaching environment, teaching content, teaching methods, teaching activities and teacher-student interaction, and the application of brainstorming can effectively connect all teaching activities in this process [18]. Applying brainstorming to music teaching is an embodiment of music teaching methods and theories [19, 20]. Some researchers compared brainstorming with other teaching methods, and found that the traditional teaching methods generally lack interaction in the classroom, the teaching effect is not good, and it's difficult to mobilize students' learning initiative [21]. Therefore, this paper attempts to explore the brainstorming theory, apply it to the visual teaching of music class, and offer theoretical evidence to the reform of music course.

2 The visual teaching of music class

2.1 The positive role of visual teaching in music class

Visual thinking emphasizes on the thinking, sorting, and reorganizing of observed matters, while the audiovisual synesthesia emphasizes the interaction between hearing and vision [22]. In music teaching, there are many visualized expression methods such as mind maps, music scores, and music elements, etc. [23]. The teaching of musical scores and notes guided by the theory of multimedia learning is in line with the melodic feature of the music discipline [24]. In the visual teaching of music class, teachers use multimedia to integrate music, images, videos, and other visual elements, and bring students with an intuitive musical experience from both visual and auditory aspects [25]. The visual teaching of audios and videos is more intuitive than images, audios and videos can replace teacher's language to give students the most vivid visual experience [26].

Figure 1 shows the design process of visual teaching activities. The visual teaching design runs through the entire teaching process. Before visual teaching, teachers need to analyze the specific teaching content comprehensively to clarify the specific teaching forms; after completing the visual teaching works, they also need to evaluate the entire process of visual teaching, find out problems in the visual teaching design, then modify

the problems and optimize the design. Elements included in the visual teaching activities contain the teaching content, teaching goals, learner analysis, organizational form, support plan, activity rules, and activity evaluation, etc. [27].

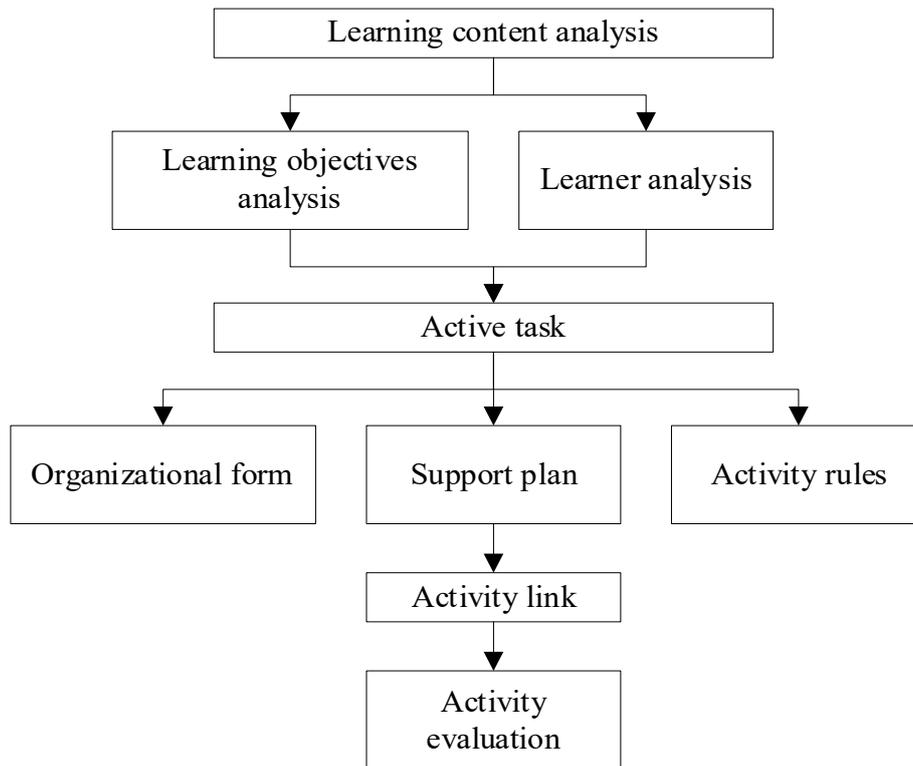


Fig. 1. Design process of visual teaching activities

2.2 The status quo of visual teaching in music class

Our research team investigated the state quo of visual teaching in music class, Table 1 gives the survey results, the respondents include students and teachers, all students are from a middle school in Wuhan city, China, and the effective rate of the questionnaires is more than 96%. The survey content includes the students' fondness of music class, their evaluation on music teaching, the teaching content of music class, and their solutions for problems, etc. Figure 2 shows the reasons why students like the music class, 33.33% of them like it as an expression of themselves, 28.31% and 23.54% of them like it because of the attraction and the rhythm of the music, respectively. Figure 3 shows the students' evaluation on the visual teaching of music class, more than 50% of the students like it or like it very much. Figure 4 shows the teaching content of music class of each grade. The most popular teaching content is music singing, followed by

music appreciation and basic music knowledge, and students do not like music performance or music creation very much. Figure 5 shows the solutions of students when they encounter questions in music teaching. 53.76% of them will seek guidance from teachers, 33.8% of them determine to solve the problems by themselves, and other students choose to ignore the problems or leave them unsolved. Figure 6 shows the functions of visual teaching in music class, the primary functions are to improve music skills, cultivate music aesthetics, and enhance communicative competence.

Table 1. Basic information of the questionnaire survey

Respondents	Distributed questionnaire	Returned questionnaire	Recovery rate	Effective rate
Student	571	569	99.65%	96.15%
Teacher	42	42	100%	97.62%

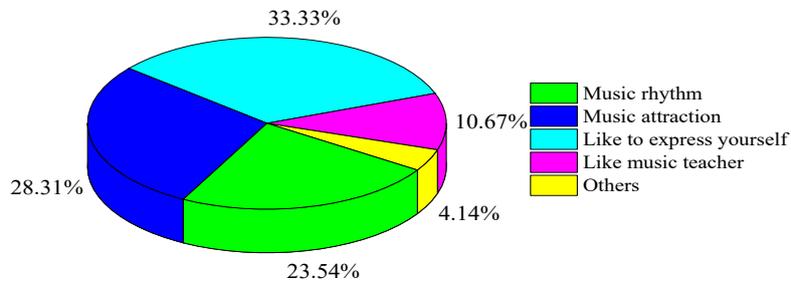


Fig. 2. Reasons why students like the music class

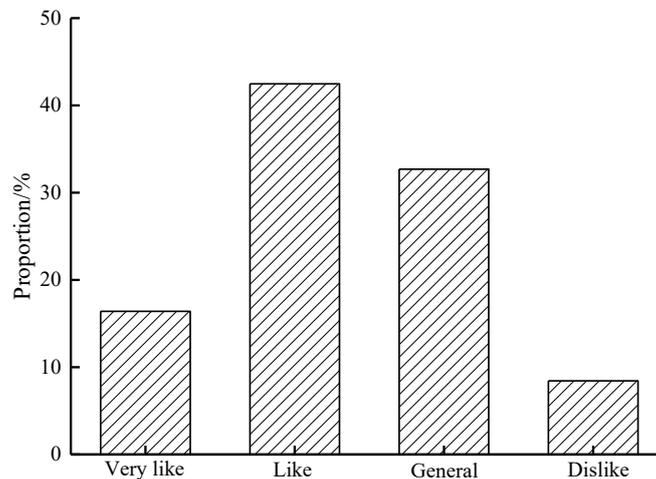


Fig. 3. Students' evaluation on the visual teaching of music class

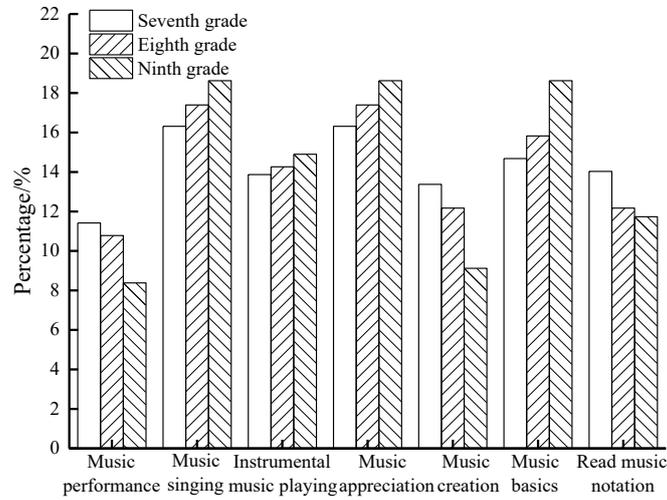


Fig. 4. Teaching content of music class of each grade

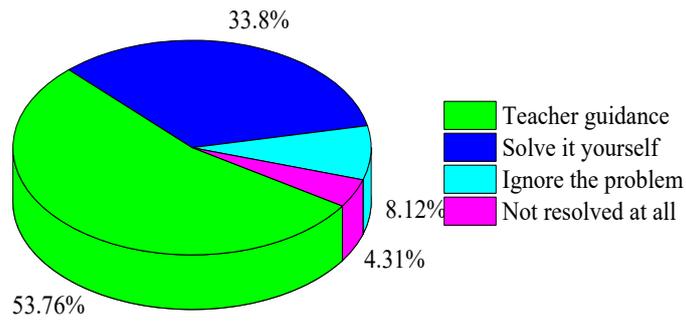


Fig. 5. Solutions of students when they encounter questions in music teaching

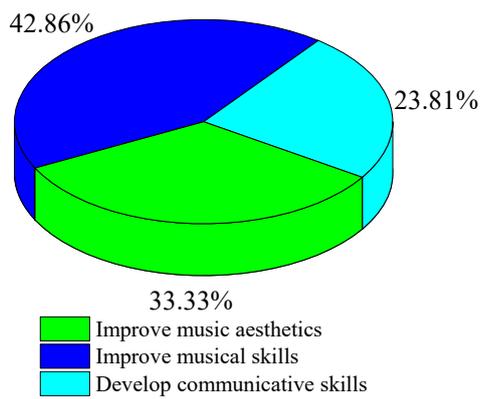


Fig. 6. Functions of visual teaching in music class

3 The application of brainstorming theory in music teaching

3.1 Necessity

At present, the teaching form of music class in middle schools and elementary schools is fixed [28, 29]. However, as students can get more information in these days, the stereotyped teaching form not only affects teachers' enthusiasm for teaching, but also kills students' enthusiasm for music learning [30, 31]. In music teaching, it's not that each teaching module exists separately, the design of each visual module emphasizes independent learning and cooperative learning. To improve the teaching efficiency of music class and avoid single, solidified, and uncreative teaching methods, the visual teaching should be introduced into the teaching of music class. Brainstorming is a creative thinking method, introducing it into music class can help teachers train the divergent thinking and creative thinking of students.

Figure 7 shows the principles of the brainstorming theory, first, it encourages "free imagination", applying brainstorming in music class enables students to think freely, use their imagination to the greatest extent, and overcome inertial thinking and laziness. The second principle is the principle of deferred judgment, which means to trigger students' thinking of any idea through rich associations and connections. The third is the quantity and quality principle, no thinking or idea is immutable, people should learn to break through traditions and limitations, and highlight more creative and valuable ideas. The fourth principle is to explore research combinations and improve concepts, meaning to inspire students to consider other ideas other than their original thoughts by themselves.

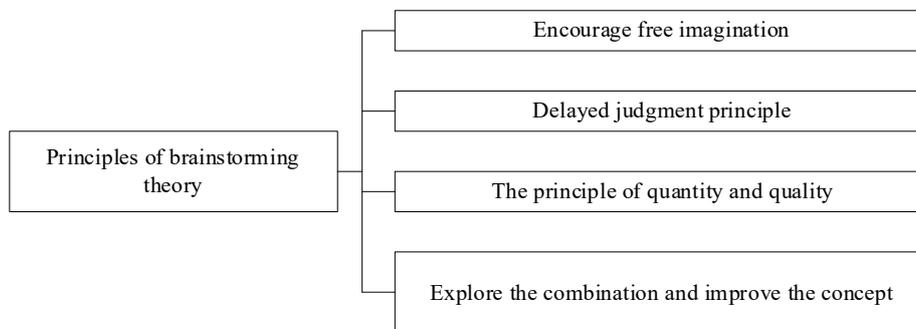


Fig. 7. Principles of the brainstorming theory

3.2 Feasibility

Figure 8 shows the relationship between the visualization of music education and relevant disciplines. As can be seen from the figure, the visualization of music education is related to many disciplines, with music acoustics as the scientific basis, human-computer interaction, sensing and control technique, and computer and information

technology as supports, it is closely related to music images and graphics. The application forms of visualization in music field include music creation, music performance, music research, and music education. Before introducing brainstorming into music teaching, it's necessary to clarify the problems need to be solved and the requirements of music teaching first. Students' music attainment is inseparable from the formation of their cognition structure of art. Music class is different from other majors and their main courses, music class is fun, by creating certain environment, the classroom atmosphere could be activated. For art such as music, creativity is the art of teaching. By introducing brainstorming into music teaching, we can trigger students' interest in music learning, give them more initiative, and let them be the real master of the music stage. Brainstorming can effectively provide help for the interaction in the classroom, allowing students to better participate in the class, triggering their learning interest, increasing their learning information, and cultivating their habit of independent thinking.

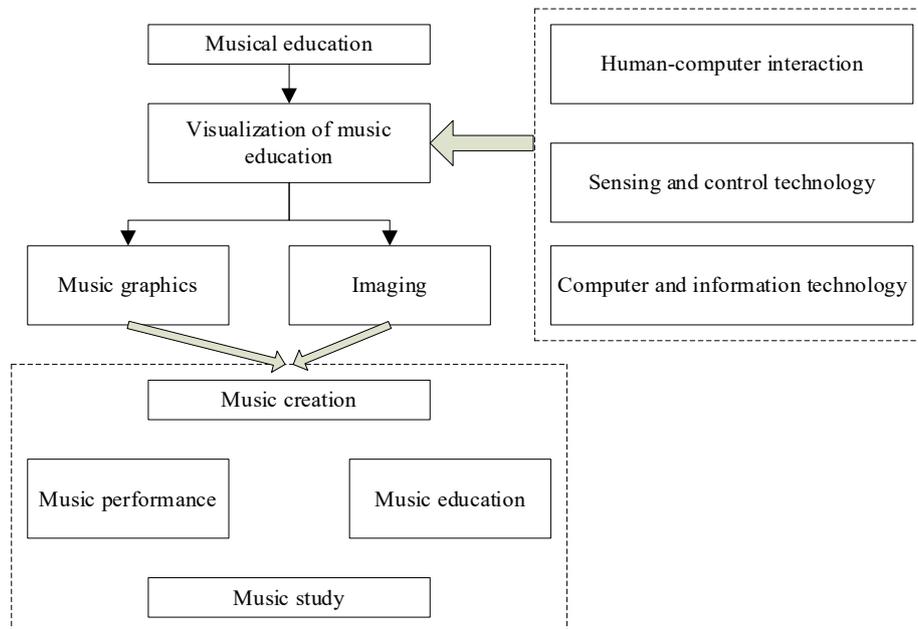


Fig. 8. Relationship between the visualization of music education and relevant disciplines

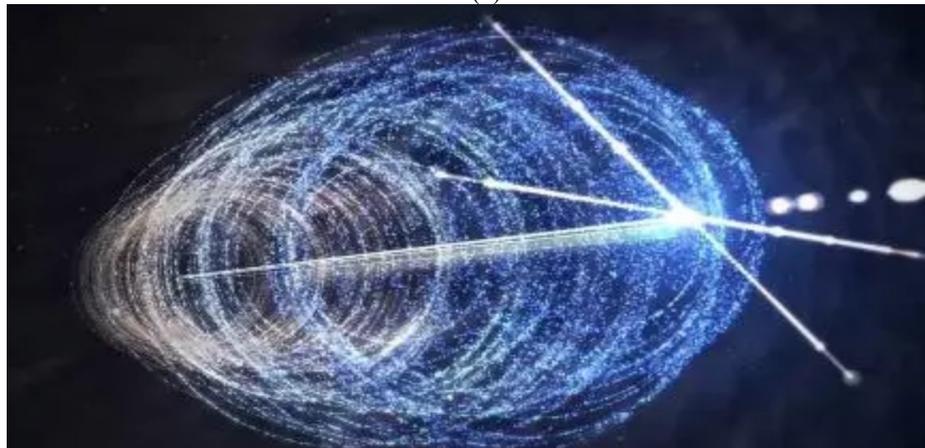
4 The effect of brainstorming in the visual teaching of music class

The visualization of music education includes many music teaching methods. Any method that can convert music art into a visible thing and convey similar feelings to people can be called a visual teaching method of music. During the survey, we discovered a situation that many teachers are unwilling to take the music appreciation course and the music creation course because they don't know how to instruct children to listen

and analyze. Figure 9 gives two examples of the visual expression of music, which can show the rhythm of music through visual effect to achieve the purpose of music appreciation. Brainstorming surpasses the traditional classroom teaching method, it guarantees students' dominant position in the class, allows them to experience music more intuitively, excites the rhythm and melody in their own body, and guides them to actively participate in music performance activities.



(a)



(b)

Fig. 9. Visual expression of music

5 The role of visual analysis in music teaching

Figure 10 summarizes the deficiencies in current music teaching. In terms of students, some students do not have a correct learning attitude, some students' basic knowledge is not solid enough, and some students' music quality needs to be improved. The visual analysis in music teaching can cultivate students' music appreciation ability,

help them accumulate music knowledge, and stimulate their creativity in music learning. In terms of teachers, some teachers' music attainment cannot meet the teaching requirements, teachers haven't received sufficient training for music teaching and research, the work load of music teachers is large, a music teacher often needs to undertake the music course of at least ten classes. In terms of schools, the budget for music teaching is often very limited, usually there's very few venues and instruments for music teaching, and the school leaders generally pay insufficient attention to music teaching.

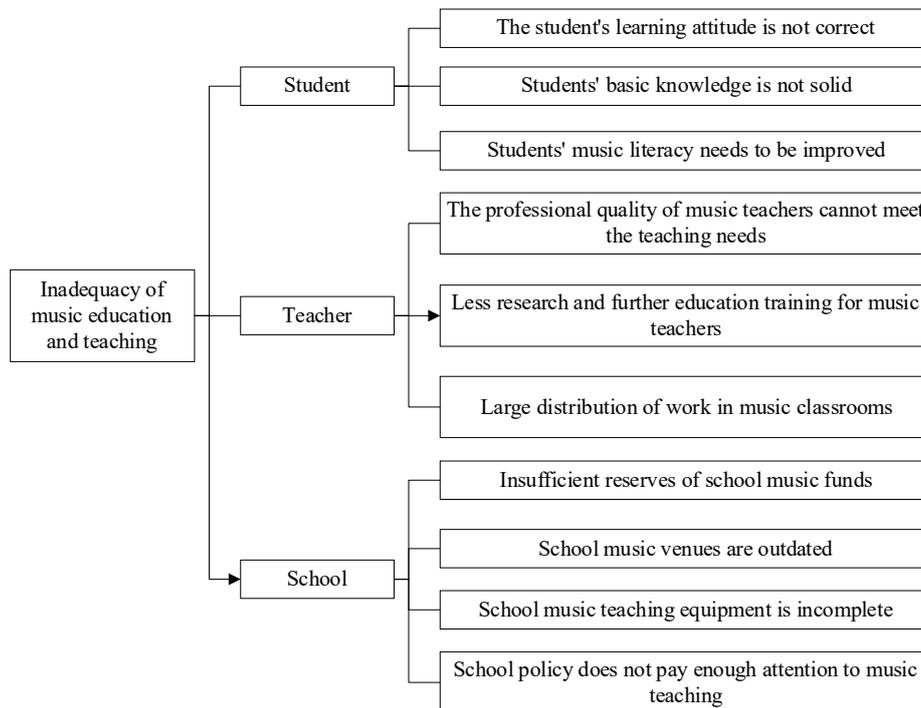


Fig. 10. Deficiencies in current music teaching

Figure 11 is a statistic of the visual teaching tools for music class, including slides, electronic piano, projector, multimedia, and computer, etc. Figure 12 shows the evaluation on the visual analysis of music teaching. 75.34% of the respondents think that visual analysis is very necessary for music teaching, 17.81% of them think it's necessary, that is, more than 93% of the respondents consider visual analysis as a necessity for music teaching. Figure 13 lists a few countermeasures proposed by this paper for enhancing the effect of visual teaching in music class. We should correctly trigger students' interest in music learning, cater to the music taste of students in the new era, build the teaching idea of taking students as the dominant party of education, mobilize students' initiative in music learning, pay attention to music visualization in teaching,

and make use of the visual teaching tools reasonably; through brainstorming, we can create an active classroom atmosphere and organize students to participate in some extracurricular music activities, thereby expanding their music vision and cultivating them to have a lifelong interest in music. In addition, the music teachers' professionalism and teaching level should be improved; extracurricular music activities could be developed to enrich students' music activities outside the schools, and the interaction between music teachers and students should be increased. Moreover, we should also optimize the music course evaluation system of teachers and students, adhere to the principles of music course evaluation, and diversify the evaluation system of music course.

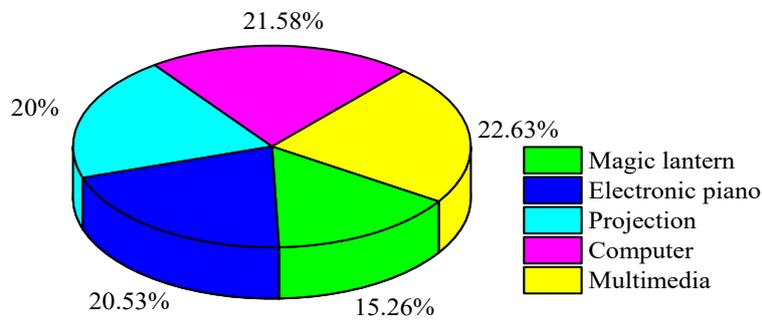


Fig. 11. Visual teaching tools for music class

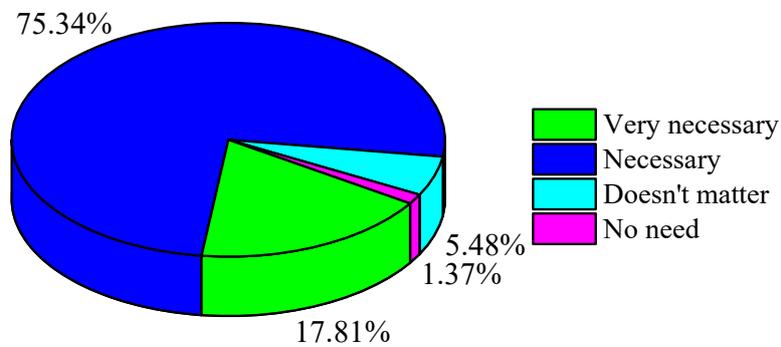


Fig. 12. Evaluation on the visual analysis of music teaching

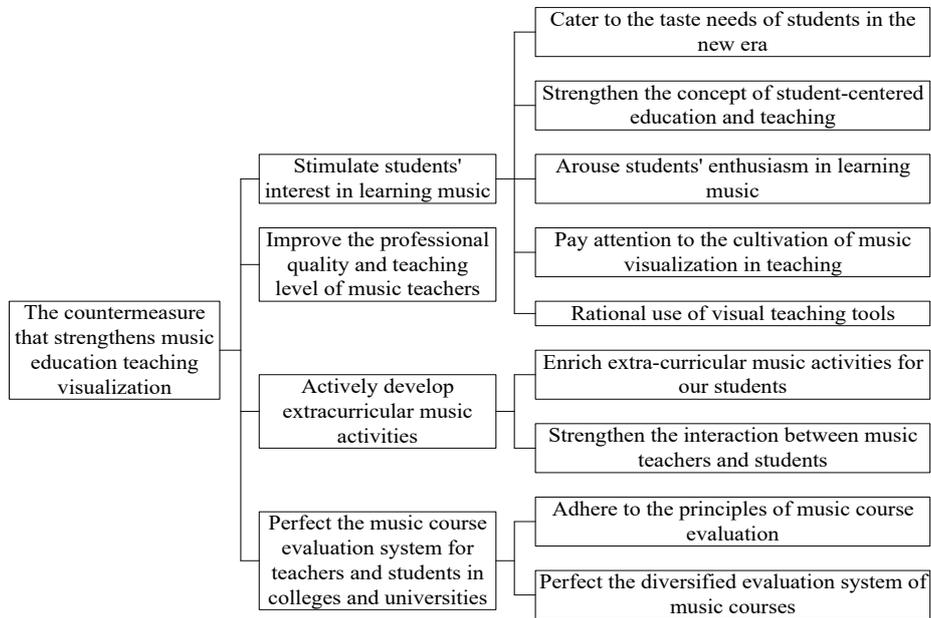


Fig. 13. Countermeasures for enhancing the effect of visual teaching in music class

6 Conclusions

Based on the theory of brainstorming, this paper explored the application of brainstorming in the visual teaching of music class, and obtained following conclusions:

1. More than 50% of the students like visual teaching in music class or like it very much. The most popular music teaching content is music singing, followed by music appreciation and basic music knowledge, however, student do not like music performance or music creation very much.
2. Principles of the brainstorming theory include the principle of encouraging free imagination, the principle of deferred judgment, and the quantity and quality principle. No thinking or idea is immutable, we should learn to break through traditions and limitations, and highlight more creative and valuable ideas.
3. Brainstorming surpasses the traditional classroom teaching method, it guarantees students' dominant position in the class, allows them to experience music more intuitively, excites the rhythm and melody in their own body, and guides them to actively participate in music performance activities.

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