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The Effects of Utilizing Overture in Music Auditory Training among Chinese College Students

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Abstract: *The use of the overture method in music auditory training proved to be efficient in enhancing students' aural musical skills. The researcher aims to explore the effects of utilizing overture in teaching aural musical skills among Chinese college students. The quasi-experimental design was employed in this study. The Experimental Group and the Control Group were taught aural musical skills using two different methods (the overture method and the conventional method) over a period of eight weeks. The sample of the study consists of 70 first-year Chinese musical students from a college in Hunan province, China (35 students in the Experimental Group while another 35 students in the Control Group). A pre-test and post-test were used as instruments in this study before and after the intervention. The data was analyzed using SPSS Program for Windows version 25, using Independents samples t-test. A pilot test (music auditory test) was carried out to obtain the reliability and validity of the instrument before the actual study. The findings reveal that the performance of the students from the Experimental Group was better than the students from the Control Group in their overall aural musical skills (melodic intervals, rhythmic patterns, monophonic music, and two-voice music). The findings have important pedagogical implications because they indicate that the utilization of overture enhances students' aural musical skills. Therefore, it can be concluded that the overture method should be employed as an alternative method to improve students' aural musical skills in future music auditory training.*

Keywords: *Overture method, Conventional method, Melodic intervals, Rhythmic patterns, Monophonic music, Two-voice music, College students, China.*

I. Introduction

Music has limitations compared with other art forms, like painting, drama, and film. Music can neither express concrete meanings like words nor express concrete visual images like paintings. Music uses pure sound as the raw material for expression (Mao, 1961). It can be said that all music art forms are inseparable from musical aural ability, just as reading depends on the ability of literacy. Because of this, music auditory training is

regarded as the basic quality and ability of music major students and becomes an indispensable part of music teaching. Zhang (2010) stressed that effective music auditory training can lay the foundation for students to learn other music skills with high quality and efficiency. Conversely, the lack of musical aural ability will greatly affect students' in-depth learning in the field of music. With the introduction of digital technology in the field of teaching, computer-based multimedia resources, and technical methods have become increasingly abundant, and more and more modern music teaching methods and teaching models have been proposed and applied (Zhou, 2013).

The teaching practice of digital music technology and resources is not specific enough in China compared with the more systematic use of computer-assisted music teaching and application in some developed countries because it is influenced by the conventional music teaching model (Yu, 2011). In addition, the students' learning effect is not ideal and their enthusiasm for learning is not high because the improvement of aural musical skills largely depends on students' self-practice after class. However, students' self-practice after class adopts the conventional practice method, which has its particularity in practice time, practice place, practice tools, and practice partners (Zhao, 2015).

1.1 Problem Statement

The conventional teaching method is still used in most comprehensive music universities. That is, the teacher is the leader of the teaching activities, and the students follow the teacher in music auditory training in classroom teaching. Besides, the piano and blackboard are auxiliary teaching aids in the conventional method. In addition, there is less protection in terms of practice time, practice location, and practice materials in the after-school practice because of the limited practice mode. With the innovation and development of multimedia technology and computer music resources, the introduction of digital sound into music auditory training makes up for the singularity of piano timbre. However, the digital music teaching coverage is not extensive and in-depth, and most of them stay on the display of multimedia audio, images, and videos due to the deficiencies of technical and operational. Moreover, it is less combined with the changes of various music auditory materials, and the effect on improving the students' musical aural ability is not obvious (Xia 2012).

Compared with the overture method, the conventional method cannot provide different music auditory materials for different students with different practice needs, nor can they provide rich auditory training in terms of timbre. In addition, using paper sheet music to record music auditory materials in the conventional method is not convenient for students to practice notes and rhythm while listening to music, and it is not convenient for students to exchange and share music auditory materials with each other. Therefore, students who use the conventional method to study are faced with the following difficulties: first, they cannot make full use of their free time at the moment when the Internet and mobile terminals are convenient to achieve self-practice anytime and anywhere; second, it is difficult to obtain music auditory materials that are consistent with their own musical aural ability; third, it is impossible to realize diversified digital editing of practice materials; fourth, it is not possible to use the network to communicate and share music auditory materials with electronic devices (Yu, 2011).

1.2 Research Hypothesis

Four null hypotheses were formulated based on the objective of the study:

Ho1: There is no significant difference in the mean scores for aural musical skills (listening for melodic intervals) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

Ho2: There is no significant difference in the mean scores for aural musical skills (listening for rhythmic patterns) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

Ho3: There is no significant difference in the mean scores for aural musical skills (listening for monophonic music) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

Ho4: There is no significant difference in the mean scores for aural musical skills (listening for two-voice music) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

II. Review Of Literature

Using the overture method to enhance students' aural musical skills is related to Mayer's theory of multimedia and Vygotsky's theory of scaffolding instruction and collaborative learning. On this basis, the researchers further obtained relevant research information and research results and then determined the purpose of this research.

2.1 Mayer's Theory of Multimedia

Multimedia teaching integrates pictures, texts, sounds, and moving images, providing the possibility for a more ideal teaching environment and learning materials (Avanzini, Baratè, Ludovico, & Mandanici, 2020; Kostka & Santa, 2018). The use of multimedia in teaching is not only conducive to improving the shortcomings of conventional teaching but also conducive to enriching teaching methods and teaching materials (Wu, 2020). Multimedia teaching enables students to become active participants, and finally realize the cognitive construction of new knowledge by using digital presentation materials (Yan, Miao, & Wang, 2013; Zhou, 2021; Wong, Chen, & Lim, 2021). Mayer believes that multimedia teaching information designed according to the way of human psychological work is more likely to produce meaningful learning than multimedia teaching information designed not according to the way of human psychological work (Mayer, 2005). Based on this concept, Mayer clearly distinguished the two concepts of "learning science" and "teaching science", and interpret the task of "teaching science" as research based on empirical evidence to help and promote people's learning (Mayer, 2009). In short, "teaching science" is the scientific research on how to help humans learn. The ultimate goal of multimedia learning is to explore effective organizational methods and effective teaching strategies based on multimedia teaching (Mayer, 2005).

Mao and Sheng (2017) proposed that Mayer's definition of multimedia learning is a generalization of three

types of learning, including learning response enhancement, knowledge acquisition, and knowledge construction. Multimedia music teaching is a breakthrough in the original methods and procedures in the conventional music field by using multimedia cognitive concepts and digital music technology (Wei, 2011; Jiao, 2020; Zha, 2020), especially the application of digital teaching aids (Yuan, 2020; Zheng, 2020; Chai, 2019). The intervention of digital technology has gradually eliminated the location and time limitations of music learning and the restrictions on the information flow conditions experienced by it, realizing human-computer interaction and resource sharing (Wang, 2013; Lu; 2015). This study introduces the music software overture to music auditory training and studies the teaching method based on Mayer's multimedia cognitive theory.

2.2 Vygotsky's Theory of Scaffolding Instruction

Vygotsky's scaffolding theory is about learning aids, and its role is to improve students' ability to solve problems independently (Sawyer, 2005; Van Der Stuyf, 2002; Tang, 2010). Throughout the learning process, students can receive guidance and support including resources, tasks, templates, guides, cognitive and skill development (Beed, Hawkins, & Roller, 1991; Wood, & Wood, 1996). The overture teaching method proposed in this study is about technical scaffolding with the help of tools. It is the use of computers to help students complete tasks that cannot be completed by independent ability, and they are supported by others than teaching (Yelland & Masters, 2007; Li & Zhang, 2020).

Music auditory training is not suitable for independent practice due to the limitations of its practice methods (Ma, 2013). Vygotsky's theory of scaffolding instruction provides reference and support for the new method in this research (overture method). Based on existing knowledge, students can break down complex learning tasks through the support provided by technical scaffolding (Nasrifan & Saidon, 2017; Ruthmann & Hebert, 2018), improve their levels of aural musical skills, or gain new understanding (Raymond, 2000; Bai & Wang, 2019; Song, 2017). In this study, the use of various custom and quick setting functions of music software overture can provide students with music auditory materials with different levels of difficulty (Gu, 2021; Chen, 2019), which breaks through the limitations of practice time and practice location in the conventional method. Further, the overture method gradually improves students' levels of ability and reduces the dependence on auxiliary tools, and achieves the goal of having the ability to complete independently (Lai & Law, 2006; Wang, 2009).

2.3 Vygotsky's Theory of Collaborative Learning

Vygotsky (1978) stressed the importance of the social and cultural environment and the meaning of "union", that is collaborative learning (Ma, 2005). Compared with the situation where students are in a passive learning position in the conventional method, collaborative learning proposes an outline and specific idea, realizes the expansive transition from individual behavior to collective activities, and provides students with more content-related communication opportunities (Zhong, 2018).

Through collaborative learning, students complete teaching tasks in groups or teams and discuss and analyse music problems raised by teachers together, which helps to promote students' learning potential (Jacques, 1999). The overture method proposed in this study compared with the conventional method provides timely feedback and real-time sharing support for students' learning, which is beneficial to improve students' self-confidence and innovation ability. In addition, collaborative learning transforms the conventional teaching from static one-way teaching to dynamic two-way or multi-way communication, which is conducive to constructing students' music

knowledge framework and comprehensively improving their music literacy.

III. METHODOLOGY

This is a quantitative study using a quasi-experimental design. The sample of the study is 70 first-year musical students with similar levels of musical aural ability from Hunan City University, Hunan province, China (35 students in the Experimental Group using overture method and 35 students in the Control Group using the conventional method). Both groups are taught by two well-trained music lecturers for 8 weeks. The pre-test and the post-test were carried out before and after the intervention. The contents of both the tests are the same which consist of melodic intervals (10 marks), rhythmic patterns (26 marks), monophonic music (32 marks), and two-voice music (32 marks), a total of 100 marks. The quantitative data was collected through the two tests. The data was analyzed using SPSS Program for Windows version 25, using Independent samples t-test.

IV. Results And Discussion

The purpose of this analysis is to see the difference in the mean scores for aural musical skills (melodic intervals, rhythmic patterns, monophonic music, and two-voice music) between the two groups. In this study, the two tests aimed to investigate the differences of mean scores on aural musical skills before and after the intervention.

Ho1: There is no significant difference in the mean scores for aural musical skills (listening for melodic intervals) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

Table 4.1
Comparison between mean scores for melodic intervals in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	7.32	.91	.10	.50	68	.617
Con.	35	7.22	.74				

Level of significance is at $p<0.05$

Table 4.1 shows the performance of the students from the two groups for aural musical skills (listening for melodic intervals). The mean score of the two groups were almost similar (7.32 in the Experimental Group and 7.22 in the Control Group). Findings from the independent sample t-test indicate that there is no significant difference between the two groups in the mean scores for aural musical skills (listening for melodic intervals) before the intervention (Mean difference = .10, t = .50, df = 68, p = .617).

Table 4.2
Comparison between mean scores for melodic intervals in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	8.56	1.84	1.01	2.57	68	.013
Con.	35	7.54	1.44				

Level of significance is at p<0.05

Table 4.2 explains the students' mean scores for aural musical skills (listening for melodic intervals) in the two groups after the intervention. The students' mean score from the Experimental Group is higher (Mean = 8.56, SD=1.84) than the students from the Control Group (Mean = 7.54, SD=1.44). Findings from the independent sample t-test indicate that there is a significant difference between the Experimental Group and the Control group in their musical auditory skills (listening to melodic intervals) after the intervention (Mean difference = 1.01, t = 2.57, df = 68, p = .013). Therefore, the results fail to accept Ho1. The findings clearly show that the students' musical auditory skills (listening to melodic intervals) of the Experimental Group have significantly improved when the overture method was used in the musical auditory training compared with the Control Group under the conventional teaching method. These findings are parallel to findings by Zhou (2021), Wong, Chen, & Lim (2021) which stated that the melodic intervals are a valuable skill for overall and complex musical works. It is one of the aural musical skills that music majors must master because it can help students learn more complex skills, such as listening to the melody. In addition, utilization of overture can improve students learning efficiency (Bai & Wang, 2019; Song, 2017).

Ho2: There is no significant difference in the mean scores for aural musical skills (listening for rhythmic patterns) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

Table 4.3
Comparison between mean scores for rhythmic patterns in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	21.76	2.85	.10	.17	68	.867
Con.	35	21.66	2.06				

Level of significance is at p<0.05

Table 4.3 reveals the students' performance for aural musical skills (listening for rhythmic patterns) in the two groups before the intervention. The mean score for the Experimental Group and the Control Group were 21.76 and 21.66. The results from the independent sample t-test indicate that there is no significant difference in the mean scores for aural musical skills (listening for rhythmic patterns) between the two groups before the intervention (Mean difference = .10, t = .17, df = 68, p = .867).

Table 4.4
Comparison between mean scores for rhythmic patterns in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	25.04	1.88	3.01	5.20	68	.000
Con.	35	22.03	2.87				

Level of significance is at p<0.05

Table 4.4 explains the students' mean scores for aural musical skills (listening for rhythmic patterns) in the two groups after the intervention. The performance of the the Experimental Group is better (Mean = 25.04, SD = 1.88) than the students of the Control Group (Mean = 22.03, SD = 2.87). The results from the independent sample t-test reveal that the students from the Experimental Group performed significantly higher than the students from the Control Group in aural musical skills (listening for rhythmic patterns) after the intervention (Mean difference = 3.01, t = 5.20, df = 68, p = .000). Therefore, the results fail to accept Ho2. In addition, when students immersed in the overture environment they perform better than those who were taught using conventional strategies. Current findings are consistent with the findings by Jiao (2020), Zha (2020), and Lu (2015) who highlighted that the digital audio practice method can effectively improve learning efficiency. On the other hand, using overture can provide learners with richer learning content (Nasrifan & Saidon, 2017; Ruthmann & Hebert, 2018) and realizes the practice difficulty and practice methods of custom music auditory materials for students (Gu, 2021; Chen, 2019).

Ho3: There is no significant difference in the mean scores for aural musical skills (listening for monophonic music) of the Experimental Group (using the overture method) compared with the Control Group (using the conventional method).

Table 4.5

Comparison between mean scores for monophonic music in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	26.06	2.46	.20	.31	68	.756
Con.	35	25.86	2.89				

Level of significance is at p<0.05

Table 4.5 reveals the students' mean scores for aural musical skills (listening for monophonic music) in the two groups in the pre-test. The mean score for the Experimental Group was 26.06. Whereas the mean score of the Control Group was 25.86. Findings from the independent sample t-test indicate that there is no significant difference between the Experimental Group and the Control group in the mean scores for aural musical skills (listening for monophonic music) before the intervention (Mean difference = .20, t = .31, df = 68, p = .756).

Table 4.6

Comparison between mean scores for monophonic music in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	30.14	3.29	4.01	4.46	68	.000
Con.	35	26.13	4.18				

Level of significance is at p<0.05

Table 4.6 explains the students' mean scores for aural musical skills (listening for monophonic music) in two groups after the intervention. The students' mean score for the Experimental Group is higher (Mean = 30.14, SD = 3.29) than the students from the Control Group (Mean = 26.13, SD = 4.18) in the post-test. The independent

sample t-test results show that the mean scores of the Experimental Group and the Control Group are significantly different in terms of musical auditory skills (listening for monophonic music) in the post-test (Mean difference = 4.01, t = 4.46, df = 68, p = .000). Therefore, the results fail to accept Ho3. The findings clearly show that the musical auditory skills (listening for monophonic music) of the Experimental Group have significantly improved when the overture method was used in the musical auditory training compared with the Control Group under the conventional teaching method. These findings support the findings of Avanzini, Baratè, Ludovico, & Mandanici (2020) and Kostka & Santa (2018) who proved that there is a significant learning effect when learning materials are optimized. Therefore, the utilization of overture contributes to the cultivation of students' autonomy and self-consciousness in learning music (Wang, 2009).

Ho4: There is no significant difference in the mean scores for aural musical skills (listening for two-voice music) of the Experimental Group (using the overture method)) compared with the Control Group (using the conventional method).

Table 4.7
Comparison between mean scores for two-voice music in the pre-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	25.20	2.67	.17	.28	68	.778
Con.	35	25.03	2.38				

Level of significance is at p<0.05

Table 4.7 shows the students' mean scores for aural musical skills (listening for two-voice music) in the two groups before the intervention. The mean score for the Experimental Group was 25.20, compared with 25.03 for the Control Group. The results of the independent sample t-test show that the mean scores for aural musical skills (listening for two-voice music) between the Experimental Group and the Control Group are almost the same before the intervention (Mean difference = .17, t = .28, df = 68, p = .778).

Table 4.8
Comparison between mean scores for two-voice music in the post-test

Group	N	Mean	SD	MD	t-value	df	p-value
Exp.	35	30.29	3.91	2.73	3.66	68	.000
Con.	35	27.56	2.04				

Level of significance is at p<0.05

Table 4.8 explains the students' mean scores for aural musical skills (listening for two-voice music) in two groups after the intervention. The students' mean score for the Experimental Group is better (Mean = 30.29, SD = 3.91) than the students from the Control Group (Mean = 27.56, SD = 2.04) in the post-test. Findings from the independent sample t-test indicate that the students from the Experimental Group improved their musical auditory skills (listening for two-voice music) after using the overture method (Mean difference = 2.73, t = 3.66, df = 68, p = .000). Therefore, the results fail to accept Ho4. The findings clearly showed that the musical

auditory skills (listening for two-voice music) of the Experimental Group has significantly improved when overture was used in the musical auditory training compared with the Control Group under the conventional teaching method. These findings are consistent with studies by Yuan (2020), Zheng (2020), and Chai (2019), who emphasized that digital music technology has broken through the shortcomings of practice timbre because the piano is the only instrument in the conventional method. In addition, the use of overture can improve students' ability of multi-voice musical thinking and thus have better performance in ensembles, chorus, and band performances (Li & Zhang, 2020).

V. Conclusion

In this study, the researcher used the music auditory test to examine the use of overture/conventional methods for students' aural musical skills. The results showed that the students' performance from the Experimental Group has significantly improved after using the overture method. Music auditory training is a compulsory course for all music majors and is the foundation of music ability learning (Yan, 2021). Computer music, understood in a broad sense, refers to music in which computers are used in human music activities, involving the creation, performance, production, and enhancement of music (Hao, 2010). In the era of rapid development of informatization, as one of the modern information technology methods, computer music software provides new ideas and concepts for the reform and innovation of music education (Robert, 1999). Integrating computer music software with music teaching to research the application of constructivist learning theory supported by technological development in teaching, emphasizing the concept of "student-centered" learning (Zhao, 2004). Einstein (1979/2010) said that "interest is the best teacher". Digital music tools combine images, sounds, text, and animation to make knowledge vivid, and activate students' senses such as sight and hearing at the same time to stimulate students' learning interest and the role of cognitive subjects (Feng, 2015). The study showed that the use of the overture method provided students with richer music auditory materials and a more effective learning method. These digital music effects cannot be achieved by conventional music teaching and the application of digital technology in education which will bring positive effects to students' learning (Sun, 2011; Zhao, 2020). In this study, the introduction of digital music technology into music auditory training as a teaching aid not only is a step towards introducing digital music technology into the conventional method but also promotes the improvement of learning effects. Therefore, combining overture to improve students' aural musical skills has a positive effect and benefits students.

However, there are still limitations in this study. First, this study only lasted for 8 weeks. As such, future studies should be carried out for a longer duration to investigate the retention of aural musical knowledge among students. The second limitation is that the sample of this study only consisted of only 70 music freshmen from one Chinese college. Therefore, the findings can only be generalized to similar samples. It is hoped that future studies will employ a larger sample from different universities in China so that the findings can be generalized to a bigger population. Lastly, this study only focuses on the effects of using the overture method on students' aural musical skills. Further studies should be carried out to investigate the effects of the overture on students' chord hearing and mode hearing.

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ABBREVIATIONS

Exp	Experimental
Con	Control
SPSS	Statistical Package for the Social Sciences
Ho	Research Hypothesis
MD	Mean Difference