**APPENDICES**

*Appendix S1*. Musical and linguistic background questionnaires (ENG)

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| **Musical background questionnaire** |
| **Num.** | **Question** | **(Answer Type)** |
| 1 | Do you play instruments or do vocal training? (Yes/No)If yes, please write down the instruments that you played and the years of playing. (Open answer) |
| 2 | Have you ever passed instrumental grading tests? (Yes/No)If so, write down the instrument and grade that you've got. (Open answer) |
| 3 | Do you have *absolute pitch*? (Yes/No)If yes, please listen to a short audio of a musical note and answer which note it was |
| 4 | Do you read Musical Notation? (Yes/No) |
| 5 | How often do you listen to music? | (Never / 1-2 days per week / 3-4 days per week / 5-6 days per week / Every day) |
| 6 | Would you consider yourself as a/an… | (Non-musician / Music loving non-musician / Amateur musician /Semi-professional musician /Professional musician.) |
| 7 | Are any members of your family musicians? | (No / Yes, amateur musicians / Yes, professional musicians) |
| **Linguistic background questionnaire** |
| 1 | Do you know any other foreign languages besides English? (Yes/No) |
| 2 | If yes, please write down the foreign languages that you know, its level and how often you practice it (them) (Open answer) |
| 3 | How long have you been studying English? (Open answer) |
| 4 | How much extra time do you dedicate weekly to learn English? (Open answer) |

*Appendix S2*. Control measure: vocabulary baseline test (all mandatory vocabulary)

excellent museum story musician exercise

kitchen beautiful subway villager important

race delicious remember elephant popular

enjoy noodle weather vacation spend

language message dumpling natural practice

wonderful primary character headmaster engineer

umbrella comfortably resolution halfway physical

program performer prediction fantastic environment

magazine meaningless temperature comedy astronaut

competition scientist available successful celebrate

stomachache bandage spirit volunteer satisfaction

fairness communication pressure recently achievement

government treasure island amusement opposite

equator fiction condition independence imagine

breathe training proper moonlight challenge

The survey can be accessed on the site *Wenjuanxing*: https://ks.wjx.top/jq/97940885.aspx.

*Appendix S3*. Pre- and posttests: multi-language speech imitation.

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| **Language** | **Sentences in orthographic form** | **Translation in English** |
| Russian | a. Мы работаем в офисе.  | We are working in the office |
|  | b. Эта газета лежит на столе.  | This newspaper is on the table |
| Hebrew | a. שָׁלוֹם. שמי אלון ואני תלמיד.  | Hello. My name is Alon and I am a student. |
|  | b. היום הוא יום יפה ,שהשמש זורחת.  | Today is a beautiful day, and the sun is shining. |
| Turkish | a. Özge ona çarpılmıştı.  | Özge had been lovestruck by him. |
|  | b. Ali hayır dedi. | Ali said no. |
| Japanese | a. 会社にいらっしゃいますか?  | Are you at the company? |
|  | b. 食事していないんです.  | I haven't eaten yet. |
| Catalan | a. Els Jocs Olímpics d'hivern de Pyeongchang. | Pyeongchang Winter Olympic Games |
|  | b. Avui fa un dia molt bonic.  | It's a nice day today. |
| Vietnamese | a. Rất vui được gặp bạn!  | Nice to see you! |
| 　 | b. Làm ơn cho tôi mượn tờ giấy. | Please lend me a piece of paper. |

*Appendix S4*. Pre- and posttests: English-sentence reading task

· Sentence1: Then my teacher always told me, never ever be lazy again.

· Sentence2: Wishing we could be more telepathic.

· Sentence3: Here in my dreams, in my heartbeat, in this melody.

*Appendix S5*. Lesson plans and supplementary materials for the 3 sessions of the two groups.

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| ***E1****. Summary of the 3 lesson plans (S1=Session 1; S2=Session 2; S3=Session 3) for the Embodied Music Group. For step-by-step guidance and access to audio and video files to perform the embodied music intervention, download the files “Embodied-Music-Group. Session-1.ppt”, “Embodied-Music-Group. Session-2.ppt”, “Embodied-Music-Group. Session-3.ppt”) in the OSF site https://osf.io/bm9c8/.* |
| **Session,Title of the Activity, and Target Musical Feature** | **Description of the activity** | **Teachers’ Action** |
| **S1. Introduction** | Brief introduction to the Dalcroze approach and to the sessions. |
| **S1. Activity 1“Move to the beat”.** Target features: tempo and beat | The activity is divided into two parts. During the first part of the activity, students are asked to merely walk out the beat of the music that they have just heard. The sound files for the first part correspond to 15 to 25 seconds of 5 different pieces of classical music with various tempos. Due to the fact that the sound file varies in tempo, students have to adjust their steps accordingly to the tempo of the music. For the second part of the activity, students are asked to walk and hand clap out the beat at the same time. The sound file selected for this part is the piano piece of Peer Gynt Suite No.1 Op.46 written by Edward Grieg, which accelerates the BMP (beat per minute) from 85 to 200. | The teacher first sets two samples and then students are asked to do the first part of the activity twice and the second part twice. |
| **S1. Activity 2****“Move to rhythm patterns”**.Target feature: rhythm | The activity is administered with both the performance of the music teacher and the involvement of the students. Firstly, the teacher uses a tambourine to produce a rhythm twice, then the students are asked to stand still and reproduce the rhythm with hand clapping. Second, the teacher produces the same rhythm again, after which the students need to adjust their steps to walk out the rhythm patterns by switching feet.  | The teacher uses a tambourine to produce a total of 6 rhythms. Students are asked to follow the teacher to do the activity twice with a total of 6 rhythms. |
| **S1. Activity 3****“Move to the accents in the melody”**. Target feature: accent | The activity is an adapted version of the Preparation for accents activity by *Lisa Parker*[[1]](#footnote-1), in which participants stand in pairs and act as if playing tennis while listening to a piece of music that appears with salient accents, retrieved from the audio https://www.youtube.com/watch?v=wEyyeoc\_t-U. In other words, when hearing accents in the music, the participants are asked to act as if they are swinging a racket alternately with their partners. | The teacher first shows a sample video and the audio material for familiarization. The activity will be repeated twice.  |
| **S1. Activity 4**“**Move to the final accent”**. Target feature: accent | This activity is adapted from the Dalcroze Eurhythmics Jumping Game by *Greg Ristow*[[2]](#footnote-2) which consists of a quick reaction activity that aims to promote the students' internalization of tempo, retrieved from the audio https://www.youtube.com/watch?v=usJ8\_Lq-lDY. Students are asked to listen to four sets of four musical notes in a combination and make predictions of when the fourth note will appear and quickly jump/land in time with the fourth note. | The teacher first shows a sample video and the audio material for familiarization. The activity will be repeated twice. |
| **S1. Overview** | Go over all 4 activities (lite version: 2nd part for Activity 1, 2 pieces of rhythm for Activity2, full version for the other two activities.)  |
| **S2. Warm-up** |  Repeat Activity 1 from S1 once. |
| **S2. Activity 5****“Move to the change of music scale”.** Target feature: melody | Students are asked to use body movements to feel the change of music scales. Concepts of ascending scale, descending scale, and non-changing scale are first introduced. A piece of an instrumental song originally composed by the first author that consists of different music scales appearing alternately is used as material. When the students hear an ascending scale, they need to move some steps forward and raise their arms above the head; when hearing descending scales, students need to move some steps backward and put down their arms; when hearing non-changing scales, they spin around while lifting arms up. | The teacher first sets an example and plays the audio material to the students. Students are asked to do the activity twice in addition to an accelerated version once. |
| **S2. Activity 6**“**Rhythmic body percussion part 1”**. Target feature: rhythm | The instrumental version of the famous song *We will rock you (Queen)* is used in this body percussion activity. In the first part of this activity, the students are randomly divided into three groups based on the “stomp-stomp-clap” structure of this song and each group is in charge of one action, in this sense, the first group stomps on every first beat; the second group taps their body twice every first and second beat; the third group hand-claps on every third beat. | The teacher first sets an example and plays the audio material to the students. The activity will be repeated only once as the beat feature of the song is repetitive “stomp-stomp-clap”.  |
| **S2. Activity 7****“Rhythmic body percussion part 2”**. Target feature: rhythm | The instrumental music *Take Five* by *Dave Brubeck*[[3]](#footnote-3) is used in this activity. Students sit in a circle and start to perform body percussion with sandbags (one sandbag per student) according to the features of the music. Three sets of movements are introduced with all the sets consisting of five split actions. The first set consists of the following five actions: picking up the sandbag in front of oneself, touching one’s right knee, then touching the left knee, passing the sandbag to the student who sits on one’s left side, and finally clapping their hands once. The second set is simply changing direction (from first touching the left knee then right knee, passing the sandbag to the student on one’s right side. The third set of actions are freestyle movements. Students are able to do movements more freely but always move to the beat, and they do freestyle movements during the prelude and the interlude. | The teacher sets examples, shows sample videos, and plays the audio material to the students. Students are asked to do the activity twice. |
| **S2. Overview** | Go over all the 3 activities (Full version once for Activity 5 and Activity 6, interlude part for Activity 7)  |
| **S3. Warm-up** | Do Activity5 from S2 once. |
| **S3. Activity 8****“Balloon game: touching the beat”.** Target feature: tempo and beat | The two excerpts of music in this activity are taken from *Le quattro Stagioni: La Primavera* by Antonio Vivaldi and *Hungarian Dance No.5 in G Minor* by Johannes Brahms, and performed by Martynas. Each student is provided with one balloon. They are asked to throw the balloon into the air while the music is being played and then start to touch/point the balloon with their two forefingers alternatively to prevent the balloon from falling down. The students are also asked to try their best to temporally align their balloon touching movements actions to the beats. | The teacher first shows a sample video and the audio material. Students need to repeat the activity twice. |
| **S3. Activity 9****“Move to the beats: quick reaction”.** Target feature: beat | This activity is an adapted version originally carried out by Greg Ristow. Participating students start walking to the beat when one piece of piano music is played; audio retrieved from *https://www.youtube.com/watch?v=zsROX7pQdZM*. Several breaks (Silence) will appear during the music and when the students hear the silence, they have to stop and clap out the tempo by themselves, in this sense, students learn to predict and be more sensitive to musical phrase lengths. | The teacher first shows a sample video and the audio material. Students need to repeat the activity twice. |
| **S3. Activity 10****“Musical group event”.** Target feature: rhythm and melody | This activity is a group event in which students have to perform a full set of body movements to one folk opera *Viennese Musical Clock.* The “dance” movements are rhythmical and easy to learn and follow, retrieving from the video *https://www.youtube.com/watch?v=CDH3Ai\_BFGg*. The full set of movements are split into 10 sections and the teacher guides the students to learn them with the help of the audiovisual materials. | The teacher sets examples, shows sample videos, and plays the audio material to the students. The whole song is divided into 10 separate sections for the students to learn the dance movements one by one. Students follow the sample videos doing the activity once and do the whole activity again by only listening to the audio.  |
| **S3. Overview** | Go over all the 3 activities (lite version: 1st section for Activity 10, full version for the other two activities.) |

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| ***E2.*** *Summary of the 3 lesson plans (S1=Session 1; S2=Session 2; S3=Session 3) for the Non-Embodied Music Group.*  |
| **Session** | **Activity** | **Description** |
| S1 | Leader | The teacher briefly sang the song for this session *Liangzhu: The Butterfly Lovers by Zhanhao He and Gang Chen.* |
|  | Introduction | Introduction of the history, the legend and its influence.  |
|  |  | Brief introduction of the composers. |
|  |  | Introduction of *violin orchestra*. |
|  |  | Brief introduction of the instruments: violin, copper tube, flute.  |
|  | Watching/Listening to the video | The teacher played one video about the story with music. |
| S2 | Leader | Riddle about the theme *Moon* |
|  | Quiz | Quiz on songs about *Moon* |
|  | Listening | Listen to the song Colorful clouds chasing the moon composed by Ren Guang. |
|  | Explanation | Introduction to the composer's biography. |
|  | Listening | Listen to three versions of this song (performed with different instruments). |
|  | Watching/Listening to the video  | The teacher plays one video of a ballet dance performance of this song. |
| S3 | Leader | Brief introduction of background/characteristics of *Blossoms on a Moonlit River in Spring* |
|  | Listening  | Listen to the song. |
|  | Explanation | Introduction to the Chinese orchestra (positions and instruments) |
|  | Watching/Listening to the video | The teacher plays one video of the Chinese orchestra performing this song. |

1. Lisa Parker, director of the Dalcroze Eurhythmics program at the Longy School of Music in Cambridge, MA. [↑](#footnote-ref-1)
2. Greg Ristow, a Dalcroze teacher who is an assistant professor of music and director of choral activities at DePauw University. [↑](#footnote-ref-2)
3. American jazz pianist and composer [↑](#footnote-ref-3)