Developing a Learning-by-Ear Five-Step Process as part of Game-Based Multisensory Learning Approaches in Group Piano Teaching in Higher Education

Yen-Lin Goh

Senior Lecturer, Department of Music and Music Education, Faculty of Music and Performing Arts, Universiti Pendidikan Sultan Idris, Perak, Malaysia

Mohd Hassan bin Abdullah

Associate Professor, Department of Music and Music Education, Faculty of Music and Performing Arts, Universiti Pendidikan Sultan Idris, Perak, Malaysia

Wee Hoe Tan

Associate Professor, Department of Creative Multimedia, Faculty of Art, Computing and Creative Industry, Universiti Pendidikan Sultan Idris, Perak, Malaysia

Abstract

Multisensory learning means learning through more than one sense. In Western classical music training, learning by sight with the use of musical scores has been the primary teaching and learning method. This is especially true in Higher Education, which includes universities in Malaysia. Even though learning by ear (and by touch) has long been a tradition in many cultures, including among jazz musicians, learning by ear is not generally part of the classical music curriculum in Higher Education in Malaysia, which can cause students to rely too heavily on scores. This can in turn stifle their critical thinking and active listening skills. As part of the effort in coming up with a gamified interactive piano lab that explores multisensory learning, particularly learning by ear and by touch/feel, the lead researcher has developed a "learning by ear" game activity in her group piano class, which is a five-step process. Through this process, many students were challenged to approach music learning in a different way. However, it is believed that this challenge enabled them to make more cognitive connections in their learning, in which the new concepts and skills learnt became more retainable, while it strengthened their independent learning, creative thinking and communication skills. It was also observed that the class dynamic became livelier with the competitive game-based learning sessions.

Keywords: Game-Based Learning, Games, Group Piano, Learning By Ear, Multisensory Learning

Introduction
Multisensory learning refers to a learning process involving
two or more of the senses" ("What is Multisensory Learning?", 2017). In music learning, the senses that apply are by sight (visual), by hearing (auditory), by touch (tactile), and by body movements (kinesthetic). In Western classical music training, learning by sight has been the primary teaching and learning method, especially in Higher Education, which includes universities in Malaysia. Music learning by sight refers to the use of musical score. Even though learning by ear (and by touch) has long been a tradition in many cultures, including among jazz musicians, most classical music training focuses on learning by sight especially once the children have achieved a certain reading ability. To promote multisensory learning in a classroom setting, the researcher has developed a number of game activities for her group piano teaching in the effort of creating a gamified and interactive piano lab. In each game session, the class is divided into multiple groups of not more than five members, and each group would compete against each other. The game scores then convert to their weekly participation marks. This article introduces one of the game activities that promotes learning by ear.

STATEMENT OF PROBLEM
In Malaysia, learning by sight with the use of musical scores remains the primary method in classical piano learning and teaching. Moreover, learning by ear is not generally part of the classical music curriculum in Higher Education in Malaysia, which can cause students to rely too heavily on scores. This can in turn stifle their critical thinking and active listening skills. As part of the effort in coming up with a gamified interactive piano lab that explores multisensory learning, particularly learning by ear and by touch/feel, the researcher has developed a "learning by ear" game activity in her group piano class, which is a five-step process:

1. Divide into groups, learn a simple tune
2. Each group creates its own lyrics for the tune
3. Present the song with the group's own lyrics by singing and performing in front of the class
4. Learn to play the song individually on the piano completely by ear
5. Transcribe into written notation what they sing and play by themselves

STEP 1: LEARN A SIMPLE TUNE
First, the class is taught to sing a simple tune. The tune or song chosen should fit into a five-finger position on a piano and uses not more than five different notes total. It can be a children song or folk song from any culture. An example is *Lightly Row*, which is originally a German folk song *Hanshen Klein* before it became popular around the world. The instructor may choose to use the original lyrics, solfege, or made-up lyrics that he or she thinks would be easy for learners to remember. The instructor would introduce the tune by singing it to the class, and have the class repeat after him or her phrase by phrase before singing the entire song together. The students may request the instructor to repeat singing the song or the phrase as many times as they would like to hear it and to sing along.

In the process of trying to sing the song, the student can feel what it is like to reproduce the song through his or her own voice, feeling the rising and falling of the pitches, and at the same time, feeling the rhythm of the song, while internalizing the song as he or she sings. The goal of this first stage is to have the students fully internalize the song by listening to the songs multiple times.

To make sure that each individual has learnt the song correctly, the instructor may ask each group to sing the song, or have representative(s) from each group singing it to the class. A point may be given to the group if the song is sung correctly with the syllable matching the pitch and rhythm.

STEP 2: EACH GROUP CREATES ITS OWN LYRICS FOR THE TUNE

Next, each group is given a few minutes (the amount of time given depends on the length of the song) to create lyrics for the tune they just learned. The lyrics can be in any language or with a combination of languages. Each group may choose to create all the lyrics collectively together as a group, or have each member create lyrics for a line or a section of the song.

STEP 3: PRESENT THE SONG WITH THE GROUP'S OWN LYRICS

In Step 3, each group presents the song with the new lyrics they just created by singing and performing it in front of the class. Each group competes with the other groups and is being evaluated in two aspects. The first aspect is the lyrics, in terms of originality, creativity, and whether or not the syllables fit the melody and contour of the music. The second aspect is the group presentation skills in the form of a performance i.e. how convincing the performance is and how well the group members work as a team. The instructor may also incorporate peer review in this step by having the other groups evaluating the group and having the score given by the other groups added to the instructor's score. All these factors may decide the winning team.

STEP 4: LEARN TO PLAY THE SONG INDIVIDUALLY ON THE PIANO COMPLETELY BY EAR

Now that the students have learnt how to sing the melody with the lyrics they created themselves, they would go to their own keyboard and be given a few minutes (the amount of time given depends on the length of the song) to learn how to play the song on the piano independently using an earphone. The students will be told that the song falls within the five-finger position, meaning the students will only have five notes total to choose from. Each of them can sing the tune to himself or herself and from their own singing, figure out the pitches on the keyboard by listening to the rise and fall of the melody.

For the next round of contest, a student from Group X can find a student from Group Y to challenge, singing and playing the song using their own lyrics. After both students perform, the instructor can decide who wins the round, or if they both tie. The student who wins the round will earn a point for his or her group.

STEP 5: TRANSCRIBE INTO WRITTEN NOTATION WHAT THEY SING AND PLAY BY THEMSELVES

In this final step, the students are asked to transcribe the song they learnt into notes, which will strengthen their memory of the song.

In this final activity, each group will send a representative to transcribe one to two bars of the music into notes on the board. The student earns a point for his or her group for each bar that is written completely correct.

LITERATURE REVIEW

Learning by Ear and Touch or Movement

The Suzuki method is a well-known method in classical music training that practices learning how to play a piece of music only by ear. It is known as the mother-tongue method, based on the fact that children have heard their mother-tongue language spoken to them and around them consistently that they pick up the language naturally. Applying this mother-tongue method to music training, the students are to listen to each piece repeatedly before playing on an instrument (Suzuki, 1983). In other words, in Suzuki training, the student is expected to learn a piece of music all by ear without the aid of any physical score.

In music learning, auditory and tactile or kinesthetic approaches often go together: one hears the sound and tries to reproduce it by physically doing something. Dancing to music is one clear example. In the case of piano class, students would sing or hear the melody first, and then reproduce what they hear by touching the keys of the piano while moving hands and fingers on the keys. The two senses (hearing and touching/doing) complement each other in that the physical movement strengthens the sound memory while the hearing helps one remembers the physical motion. The well-known Kodaly method used in children's music education focuses on "vocal/choral training with the use of hand signs" that he believed would help children in developing their sight reading of written music (GÖKTÜRK CARY, 2012, p. 179).

Game-based Learning

Game-based learning and gamification have been some of the new trends in education in recent years with the goal of creating a fun and inspiring learning environment for the students. According to Pho and Dinscore (2015), game-based learning motivates students to engage learning materials in a "playful and dynamic way." Games also enable students to be more receptive to learning (Plass et al., 2013). It is also clarified that "game-based learning is not just creating games for students to play, it is designing learning activities that can incrementally introduce concepts, and guide users towards an end goal" (Pho and Dinscore, 2015).

OBSERVATION AND DISCUSSION

As part of her research on the effects of game-based multisensory learning approaches on undergraduate music students, the researcher has designed a class plan for group piano class that incorporates several game-like activities. Each of these activities focuses on the use of different sense(s). The learning-by-ear game activity shared in this article was one of the first few game activities designed. It has been implemented in multiple groups of class piano that the researcher has taught at Universiti Pendidikan Sultan Idris (UPSI) as pilot groups. At Universiti Pendidikan Sultan Idris, all Diploma and Degree music students are required to take group piano classes for two semesters, regardless of their major instruments. The purpose of the group piano classes is to provide fundamental keyboard skills to the students. Feedback gathered from the pilot groups allowed the researcher/instructor to continuously improve and modify the game plan prior to the experiment conducted. Immediately after the session where the students were given the opportunity to create, sing, and present their own lyrics, a number of them have come up to the instructor and expressed how they particularly enjoyed this activity. It was also observed that the class dynamic became more lively with the competitive game-based learning sessions. From the ways the students were reacting, it is also suggested that the students were having fun in the class.

CONCLUSION

Each student has different learning styles (auditory, visual, tactile and/or kinaesthetic) and it is important for the teacher to be aware of the differences and to employ multiple senses in his or her teaching. The current music education in higher institutions places a strong emphasis on learning by sight (visual learning), typically in the form of lecture and demonstration. Through game-based multisensory learning exemplified by the aforementioned activity that focuses on learning by ear and touch or movement, many students were challenged to approach music learning in a different way. This challenge enabled them to make more cognitive connections in their learning, in which the new concepts and skills learnt became more retainable. In the case of this particular game activity, the concept introduced is the five-finger position and the skill obtained is learning how to play a song completely by ear. Through this learning process, independent learning, creative thinking and communication skills were also enforced. These skills are essential in equipping our students for careers in today's competitive environment.

Corresponding Author

Dr. Yen-Lin Goh
Department of Music and Music Education
Faculty of Music and Performing Arts
Universiti Pendidikan Sultan Idris
Perak, Malaysia
Email: ylgoh@fmsp.upsi.edu.my

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