



Introduction

The definition of music varies according to socio-cultural contexts. The overall definition of music in the Western world is changing. In dictionaries we still find that 'music is the art of combining the sounds in space and time', but increasing research in the last decades is expanding the knowledge of the meanings and domains of music and this may lead towards future new definitions.

Furthermore, through the use of digital technologies, music is now more available than ever and we can access music almost anywhere. The ubiquity of music in everyday life, and the corresponding diversification of musical behaviour, probably explain why there has been an explosive increase of interest in music psychology. The discipline has expanded and diversified into several sub-disciplines (Hargreaves *et al.* 2002): the contemporary cognitive, developmental, and social psychologies of music each have their own theoretical priorities, empirical research foci, and practical applications.

It seems that we are getting a little closer to the concept found in the ancient Indian Vedic tradition for which music is everything that resonate within us when singing voices or playing music instruments remind us of it.

After all, the term 'Indian music' embraces a very wide and varied field of musical phenomena. From an Indian standpoint there is nothing strange in the fact that the *Samgitaratnakara* (The Ocean of Music), a treatise dating from the thirteenth century, should begin with a detailed cosmogony, gradually narrowing its scope to the human body and the stages of pregnancy from month to month, before it gets down to what we should consider the subject of music proper (Arnold Bake, 1957)

Music is nevertheless a fundamental channel of communication: it provides a means by which people can share emotions, intentions, and meanings. Music can exert powerful physical and behavioural effects, can produce deep and profound emotions within us, and can be used to generate infinitely subtle variations of expressiveness by skilled composers and performers, such that highly complex informational structures and contents can be communicated extremely rapidly between people. Music can provide a vital lifeline of human interaction for those whose special needs make other means of communication difficult (Miell *et al.* 2005).



Music is also at the essence of humans' first interactions. When a newborn baby starts to communicate, s/he does so in 'musical' terms. The little cries of a baby, the glissando of his/her voice, the rhythms that s/he creates by using repetitive beatings, all these are used to connect to the world, very often to communicate a need. We, adults, usually respond freely, without worrying if our 'music' expressions are in tune with a particular scale or if the timbre of our voice is good enough for an aesthetical appreciation. A 'musical communication' takes place and this is what is really important. A good example is the familiar and universal game of peep-bo.

The naturalness of music communication should be cultivated also later and throughout life we should not stop this amazing process. We should use it especially to teach and learn, to transfer contents, to create meanings, to inspire creative problem-solving processes.

In the next paragraphs, various ideas are presented on why and how using music to teach. They are to be considered as seeds for further reflections and applications. The present document aims only to open a little door towards a very vast field of explorations and discoveries about the power of music as a means through which we can learn and teach.

Music can help to retain what has been learnt

Claudia E. Conett (2011) writes about a math teacher who works in one of the poorest school districts in California. He noticed that his students did not pay attention, do assigned work, or remember the simplest formula, but they could recite every word of hip-hop songs. So the teacher went home and wrote a song called "The Itty Bitty Dot" about adding and subtracting decimals. After 1 week, students' test scores dramatically improved, so he wrote more raps with lyrics such as the following:

- "Negative to the left positive to the right it's the number line dance I can dance all night."
- Improper fractions ("If it's bigger on the top, it must be improper.")
- "Line up the dot and give it all you've got!" (adding and subtracting decimals)

He now has composed more than two dozen rap songs and expanded his topics to include teaching classroom routines. What's more, his students now write math raps. The teacher credits music for making learning both relevant and fun. In 2007, he was selected as a California teacher of the year. You can visit his website at www.mathraps.com.

Of course, music attracts attention so it has the potential to increase time on task and qualitatively improve thinking while learning. These attributes account for music's ability to increase both learning efficiency and retention (Campbell, 1997). Jensen (2000) explains, "The more educators use music to assist in learning other material, the more quickly and accurately the material will become embedded".

Music and second language learning

Second language learning is becoming increasingly necessary in our multicultural society and today Europe is a continent where work mobility is a daily reality. National curricula of primary schools across Europe include the teaching of at least one modern foreign language. There have been some experimental studies that look at the effects of music on reading, vocabulary, and conversational skills in teaching foreign languages.

Language and music are important communication systems of human species and very closely connected cognitive domains. Some researchers proposed that music and language evolved from a common ancestor.

Jentschke (2007) found that the neural correlates of syntactic processing in music and language were demonstrated to strongly overlap. Moreover, further commonalities between music and language were found – e.g., comparable mechanisms in the acquisition of music and language, and a strong

influence of prosody (i.e., the musical aspects of speech) on the acquisition of syntactic regularities in language.

The literature abounds with the positive statements regarding the efficacy of music as a vehicle for first and second language acquisition. Researchers over the last twenty years have made astounding advances in the theory of language acquisition. Many find the pedagogical conjoining of language and music compelling.

Schöna D., Boyerb M., Morenoa S., Bessona M., Peretz I., Kolinskyb R. (2006) hypothesized that, compared to speech sequences, a consistent mapping of linguistic and musical information would enhance learning. Results confirmed the hypothesis showing a strong learning facilitation of song compared to speech. Most importantly, the results show that learning a new language, especially in the first learning phase wherein one needs to segment new words, may largely benefit of the motivational and structuring properties of music in song. Generally speaking, we can say as Mark Huy Lê in his paper "The Role of Music in Second Language Learning: A Vietnamese Perspective" (1999) that:

The role of music in learning can be described in terms of enhancement of social harmony, motivation force, and tool for learning.

- **Enhancement of social harmony:** One of the most important factors for achieving teaching and learning effectiveness is social harmony among learners. In a classroom, children often sing together to celebrate birthday, to play games together, to appreciate the feeling of togetherness.
- **Motivation force:** Music is used to soothe the mind, to relax the mind and body. Music enables learners to be free from pressure and stress.
- **Tool for learning:** Music is deliberately used to teach language, society and culture. Songs encode cultural meanings, inspiration, and worldviews. In other words, songs tell thousands of human stories.

An interesting repository of academic and non-academic literature, projects, web resources and PHD thesis on the subject of music and second language learning can be found as an open resource on the website of the European Union funded project 'PopuLLar': www.popullar.eu.

Teachers' music training

Teachers can start using music in classroom by being led by their own passion and interest for music. They do not need to have a specific music training to propose a music listening to their students or to scaffold them while they create their songs. Even if we know that music making requires years of practice for learners to be able to express the deepest nuances of their soul, teachers who do not have music training still can use this powerful educational tool. As mentioned above, they should be led by their own passion and, for instance, choose music pieces to listen and create activities based on music played through hi-fi systems or on computers.

Teachers should remember how natural for human beings is the act of singing. This is one of the first way to interact with children since infancy. How many teachers have the experience of singing lullabies to their own off-spring? The music perfection that we aim for when singing lullabies to lull a baby is only relative to the transmission, total and true, of our feelings. We use of the first music instrument that was given us from nature: the human voice.

Every voice is unique. There is no voice in the world that has perfectly the same timbre as another. Every voice is a vehicle of a state of mind in such a direct way as no other vehicle could be.

Even recognising the advantages that a teacher with a music training can have, we do not have to think that only those can use music in classroom. Everybody can sing and stimulate others to sing. How many activities can arouse such a unifying feeling than singing together? Teachers should try to sing together with their students and may use a recording, a CD, to play and sing together.

Claudia Cornett (2011) writes: "Classroom teachers do not need to sing *well*, play an instrument, or read music to start music integration. What is needed is commitment to the philosophy of arts integration and a willingness to learn. Put music into perspective. It is a way of knowing - an intelligence every person possesses. Students will not mind if the teacher does not have a fine singing voice if genuine enthusiasm is expressed. Making the effort to sing with students builds relationship and community - staples for discipline. Since classroom teachers are not perceived as specialists, students accept amateur efforts as natural and normal... With experience and commitment to music integration, all teachers can learn to sing without embarrassment, without being limited by the Western notion that only the talented should sing out. Remember Thoreau's point that the forest would be a very quiet place if only the talented birds sang."

Those teachers who feel the wish and the need to expand their music knowledge and practice have many ways to fulfil this aspiration.

They may invite a music expert who would deliver regular sessions on music practices for both

teachers and students.

Teachers can also decide to experience a music teaching method and attend classes in their local area or attend workshops at national or international level.

Some of the most successful music training methods are the following:

Willhems method:

This is based on practices that will enhance firstly listening skills by expanding the ability to hear (physically), to feel (emotionally), to understand (mentally). Then, gradual music making practices are developed.

Dalcroze method:

Based primarily on the use of body movements and the senses, the body is conceived as a natural instrument for the study of rhythm. For Dalcroze any musical idea could be transformed into movement and any movement could be translated into a musical idea. After this initial training, learning music symbols and playing music instruments follow.

Kodaly method:

Singing nursery songs and doing traditional circle games that include movement are at the core of this method. Listening exercises are included and the most of the activities are based on games. Also solfege is taught with specific, unconventional gestures.

Orff method:

Orff developed a music training based on the idea that feelings are an essential part of the whole process of learning music and playing an instrument. He used movements, rhymes and proverbs to teach rhythm and music expressions. Very valuable are also the music instruments that he created to develop his method. These can be very useful to be used in primary schools.

Using music listening

The idea is to include music listening in your lessons for a variety of purposes. You will need a CD player or a computer and good loudspeakers for sound reproduction.

Select music that you think may be useful for your lesson. For instance, you may want to let your students experience an historical period through the music that was composed during that time, or you may want to make a geography lesson memorable by playing traditional music related to a country, i.e. gamelan music for Indonesia, sitar and tabla music for India or flamenco music for South Spain.

You can use music to enhance the feeling and understanding of a specific context of social studies,

i.e. you can use native Indian songs to highlight the social context at the arrival of Columbus to the Americas; you can use gypsy music when teaching about Roma communities across Europe.

It is only a matter of thinking which music can be useful to make your lessons memorable and research it in the best library with sound archives of your town or through internet where there are innumerable audio files to upload as open resources. When you play the music in your classroom, try and ask your students about their impressions, feelings, thoughts about it.

Music listening can be useful to highlight the grammar elements that you need to teach. This can be done by using a song with examples of them included in the lyrics.

As mentioned in the paragraph above 'Music and second language learning', music is an invaluable tool to teach the phonemes of a second language. If your students are learning Spanish language, for instance, just use many Spanish songs in your lessons and your students will acquire the best Spanish pronunciation and vocabulary retention you could aim for.

You can use music listening to enhance creative writing and composition. Select music by Mozart or Bach and play it while they write. You will notice the results.

There are innumerable ways to use music listening, you just need to try and use it. The more you will do it, the more you will expand your own ideas and ways to use it.

Using music making

It is possible and desirable to use music making throughout the curriculum to enhance learning of subjects of virtually any discipline.

Music making in the classroom will offer many advantages, from inducing a collaborative and creative atmosphere to self-motivation. Children innately want and need to create, explore and imitate sounds. They enjoy activities involving improvising and organizing sounds into songs and music. Teachers capitalize on the intrinsic motivational power of music whenever they pair meaningful music experiences with other curricular areas. Teachers harness the mnemonic power of music by teaching students how to put curricular information into songs, raps and chants. When students write original songs about content areas, they transform information, which entails elaborate thinking (Cornett, 2011).

Warren's (1991) *Piggyback Songs for School* is a collection of songs about science, math and social studies concepts. You might use these as examples for students to write their own, which is better for learning than memorizing somebody else's song.

You can use familiar songs and ask students to replace the lyrics by using curricular concepts.

You might also select a beautiful song representative of an historical period or episode, or one celebrating nature in a particular geographical area and ask your class to sing it together. Choirs are an excellent experience to have in a classroom. When individuals sing together an invisible web of community spirit weaves them together. Group musical experiences build sensitivity, harmony and cooperation as individuals unite in common emotional response (Cornett, 2011).

To further expand music making with your students, it would be appropriate to use simple music instruments and children can even build them. Today, there are many manuals and books on how to build simple or also complex music instruments. These can easily be found on internet.

You can use rhythmic games to explain math concepts, i.e. a student plays two beats with his/her instrument, another plays three beats, a third student will play five beats as the sum of the first two performances. You may also relate math concepts to the length of a note in a given tempo, i.e. you can play four beats or eight in the same length of time.

As with music listening, applying music making in teaching curricular subjects can be an extremely varied, interesting, challenging, enjoyable addition to any traditional teaching method.

EXAMPLES OF PRACTICES

Music and maths

Aim: To memorize geometrical shapes.

Materials: Simple music instruments, i.e. different kinds of shakers, percussions, glasses filled with some water (to be beaten with a stick).

Cardboard to cut various geometrical shapes.

Teacher's skills: No particular skills are required.

Process:

1. The teacher shows various geometrical shapes, such as: triangle, square, circle and rhomb and review their names.
2. The teacher will ask the students to use the cardboard to cut three copies of each geometrical shape of about 15 cm.
3. Students are divided into groups according to the number of geometrical shapes. Each group represents a shape and each student in a group has the same music instrument, e.g. the 'triangle group' plays the maracas.
4. The teacher arranges a pattern with the geometrical shapes by sticking them on the whiteboard or on a wall, e.g. $\square \diamond \circ \Delta \Delta \circ \Delta \diamond \circ \square \square$
5. Each group of students chooses a rhythm to play with its instruments to characterize its own geometrical shape.
6. Each group plays its part by following the pattern on the whiteboard or wall to complete the whole performance

Suggested duration: 40 minutes

Expected learning outcomes: Thanks to the music involved, students will easily remember the geometrical shapes and their names.

Music and science

Aim: To memorize the names and characteristics of the planets of the solar system

Materials: CD with 'The Planets' by Gustav Holst

Teacher's skills: No particular skills are required.

Process:

1. The teacher plays the whole or part of the music related to one planet. S/he asks the students to guess which planet they are listening to and why they think it is a particular planet. S/he engages a discussion on the characteristics known for each planet.
2. The teacher plays another planet and follows the same procedure as above, until all planets have been played.

2. The teacher asks the students to invent a piece of music by imitating the instruments with their voices to represent the 'Earth', as Holst did not include it in his work.

Suggested duration: 40 minutes

Expected learning outcomes: Students will remember the names and characteristics of the planets because they have been motivated by music.

Music and literature

Aim: To interpret, understand and memorize the characters of a story or poem.

Materials: The story or poem; various music instruments.

Teacher's skills: No particular skills are required.

Process:

1. The teacher reads a story or a poem.
2. The students identify the characters of the story or poem with a melody or a rhythm created by the students and played on a particular instrument.
3. A student reads again the story (or poem) and each time the characters appear, the students play the melody/rhythm that identify them.

Suggested duration: 30 minutes

Expected learning outcomes: The story and its characters will be understood and remembered very vividly as the interest and the attention of the students will have been stimulated by music.

Music and foreign language

Aim: To get awareness of a second language and learn some words.

Materials: A children's folk song in the target language, its lyrics and translation into the language spoken by the children; CD player or computer and loudspeakers.

Teacher's skills: No particular skills are required

Process:

1. The teacher plays the song using the CD player or computer.
2. The teacher tells the students the song's title and ask them to guess what the song is about.
3. The teacher writes the lyrics and translation on a whiteboard and tells something about the song background (e.g. where and when or in which occasion the song was sung).
4. The teacher plays again the song and this time the students can follow the song by reading silently the lyrics on the whiteboard.
5. The song is played again and students sing the song all together.

Suggested duration: 40 minutes

Expected learning outcomes: Students acquire awareness of a second language and learn some words which will be easily retained because of the retaining power of music.

Music and history

Aim: To enhance history learning through music.

Materials: Pens and papers

Teacher's skills: To scaffold the students during the activity

Process:

1. The teacher suggests three historical events and ask the students to decide which one they want to focus on. If decision gets difficult, the students may vote.
2. The students select a song they know and like. The idea is to use its melody to create a new song.
3. The students write collaboratively new lyrics for the song. These are about the historical event described by the teacher.
4. The students adapt their text to the melody of the selected song and sing the song using the new lyrics.

Suggested duration: 60-70 minutes

Expected learning outcomes: Students will retain the learning of an historical episode.

Music and geography

Aim: To motivate children to learn about geography.

Materials: CDs or Mp3 files with traditional music from 3 different countries. CD player or computer with loudspeakers.

Teacher's skills: No particular skills are required.

Process:

1. The teacher plays one piece per time and asks the students to guess which country is the music from.
2. The teacher asks questions such as: "Why do you think the music is from that country? What does this music make you think of? Have you ever heard music like this? Do you know the music instruments that are playing?"
3. The teacher reveals the right country of origin and will give information on geography, music and culture of the place. S/he will tell about the music instruments and what kind of materials they are made of and can use this information to tell the students about the natural resources of the area.

Suggested duration: 80 minutes

Expected learning outcomes: Children will learn about geography and culture through music.

The above examples have been tested by primary school teachers in Europe and USA. Some examples have been inspired and adapted on the works of Claudia Cornett.

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About Willems method: <http://www.fi-willems.org/>

About Dalcroze method: <http://www.dalcroze.org.uk>

About Kodaly method: <http://www.britishkodalyacademy.org>

About Orff method: <http://www.orff.org.uk>

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