Abstract

Philosophers, scientists, and teachers have recognized the place of music for therapeutic and developmental functions (Bancroft 3-7). "In every part of the ancient world, music and musical instruments served magical or ‘therapeutic’ purposes rather than aesthetic ones" (Bancroft 4). Plato believed that "musical training is a more potent instrument than any other, because rhythm and harmony find their way into the inward places of the soul, on which they mightily fasten... making the soul of him who is rightly educated graceful” (Jowett 271). Meaningful communication is a multi-modal construct, a large part of which is musical. Spanish music therapist Patxi Del Campo (1997) asserts, “In a normal interaction, only 15% of the information corresponds to verbal language, while 70% of the message is performed through body language; the final 15% belongs to intonation, the musical character of language” (as cited in Mora, p.147). Mora asserts that a child can imitate the rhythm and musical contours of the language long before he can say the words, and caretakers of young children will agree. She says that musical aspects of language, tone, pauses, stress, and timbre are neural units which phonemes, the consonant and vowel sounds of language, are later placed (Mora 149). A significant amount of work is still being done regarding areas of the brain, but most teachers use the terms right brain and left-brain informally to describe a continuum between tasks perceived as feeling and artistic and those that seem thinking and scientific. For example, Richards claims, “music, rhythm, and movement... create a link between the right brain’s processing of music and rhythm and the left brain’s processing of verbal information” (Richards 109). Zatorre showed that the emotional response to music, which takes place in the par limbic and neocortical regions, is dissociated from both the perception of music and from other types of emotional responses (Blood, Zatorre, Bermudez, and Evans 386).

Keywords: Music, Language Learning;

1. Introduction

Throughout time, healers, philosophers, scientists, and teachers have recognized the place of music for therapeutic and developmental functions (Bancroft 3-7). W. Jane Bancroft presents an impressive litany of historical music therapists, including tribal shamans, Egyptian priest-physicians, the biblical David, Pythagoras, Aristotle, and Plato (Bancroft 4-5). She asserts, "In every part of the ancient world, music and musical instruments served magical or ‘therapeutic’ purposes rather than aesthetic ones” (Bancroft 4). Plato believed that "musical training is a more potent instrument than any other, because rhythm and harmony find their way into the inward places of the soul, on which they mightily fasten... making the soul of him who is rightly educated graceful” (Jowett 271). He took the concept of physical healing a step further, in the holistic manner common to the Greeks, advocating the learning
outcome of correct education as a graceful soul. As if bringing grace to the soul was not enough, music also embraced language and movement. In *The Greek View of Life*, G. Lowes Dickinson defines *mousikas*, from which our word "music" derives, as an "intimate union of melody, verse, and dance" (217). The Greek concept of *mousikas* was much more inclusive than ours. Music implied language, Plato himself considering a tune without words a "sign of a want of true artistic taste." Language uniquely enabled the Greek listener "to distinguish the exact character of the mood which the rhythm and tune is supposed to represent" (Dickinson 217). Plato expected language in a musical context, but he did not write about the music inside language. For insight into this, one must look to the Greek myths. The word *mousikas* means "from the muses," and understanding the origins of the muses shows how they understood music's role in the development of the linguistic genres. Meaningful communication is a multimodal construct, a large part of which is musical. Spanish music therapist Patxi Del Campo (1997) asserts, "in any oral interaction only 15% of the information corresponds to verbal language, while 70% of the message is performed through body language; the final 15% belongs to intonation, the musical character of language" (as cited in Mora, p.147). Although this ratio likely varies depending on the exact nature of the language task, interlocutors, and intentions, by drawing oral interaction in such a light, Del Campo evokes the three classical elements of *mousikas*, melody (intonation), verse (words), and dance (body language). This suggests that face-to-face interaction is as much a musical call-and-response as an exchange of words. Moreover, it could be more precise to classify it as a type of dance with musical and linguistic aspects that add expressive or concrete details.

Joanne Loewy proposes that language should be considered not in a cognitive context, but in a musical one, which she calls the Musical Stages of Speech (Loewy 48). It evolved from the work of Charles Van Riper, a founder of modern speech therapy. Infants begin with 1) crying and comfort utterances, proceed to 2) babbling, and eventually begin 3) acquiring/comprehending words. All of these sounds developmentally prepare for the telegraphic speech that follows (Van Riper 87). Loewy's model specifies the mental, physical, and emotional developments at each level and offers specific techniques to encourage vocalizing (Loewy 49). Instead of thinking about language development from the first words, caretakers can follow a child's orientation to communication from the first utterances. Physicians can tell if an infant will have problems with speech by testing their production of cooing sounds, which are a precursor to and predictor of speech (Loewy 52). Pre-linguistically, music serves as the carrier for communicative intent. The intonation contours of crying and babbling behavior have an emerging communicative purpose. These are the infant's "first audible expression of emotional need" (Loewy 51). Because there are no words involved, all of this communication comes through the musical elements of the cry. Loewy asserts that adults who wish to comfort children can sing in a child's tonality, modeling notes that resolve dissonant notes of distress (Loewy 53). Use drums to encourage internal rhythm is also helpful (Loewy 55). An infant's preverbal communication through crying incorporates turn taking, pausing when her needs are met, and this builds a foundation for social interaction with peers (Loewy 67). With a solid background in crying, most infants soon move to babbling, which enables them to consciously experiment with prosodic elements of speech, such as tone, pauses, timbre, and stress. Loewy asserts, "This music of speech is the earliest dimension of language that is used and understood by children" (Loewy 51). The babble introduces words with consonant – vowel – consonant constructions and intonational placements of musical phrases. These phrases become part of the dance of caregiver-child interaction. True words and sentences are only a few steps away. Whereas babble can be represented with letters, the meaning of this new linguistic production is still carried by the vocal contours.

1. The impact/s of music on the brain

Gardner has to date discovered eight distinct domains of intelligence, including verbal-linguistic, mathematical-logical, visual-spatial, bodily-kinesthetic, musical-rhythmic, interpersonal, intrapersonal, and naturalistic (Gardner 41-43). The linguistic and musical intelligences are separate, as will be shown in detail following, but the two work together and the outcome is stronger because of the cooperation. Task sharing occurs all of the time; in fact, language formation relies heavily upon perception of musicality.

John Carroll, an influential educational psychologist, has a different way of dividing cognitive abilities. He undertook a meta-analysis of over 460 data sets of cognitive ability test scores and found eight primary factors. These factors, 1) fluid intelligence, 2) crystallized intelligence, 3) general memory and learning, 4) broad visual perception, 5) broad auditory perception, 6) broad retrieval ability, 7) broad cognitive speediness, and 8) processing speed are “basic constitutional and longstanding characteristics of individuals that can govern or influence a great
variety of behaviors in a given domain” (Carroll 634). His broad auditory perception, otherwise known as the musical intelligence, is divided into neural sub-skills: 1) Discriminate tones and sequences of tones on pitch, intensity, duration, and rhythmic dimensions; 2) Judgments of complex relations among tonal patterns; 3) Discriminate and judge tonal patterns in musicality with respect to melodic, harmonic, and expressive aspects. This separateness may account for the different blends of these aspects seen in Classical symphony orchestra, which has a multitude of notes in regular sequences, and some polyrhythmic African music with irregularly sequenced percussive sounds. Scans that trace blood flow through the brain have lead to some of the most elucidating developments in neurological theory and support the contention that of the many separate cognitive capacities, music and language work most closely together. Robert Zatorre is a leading neuroscientist engaging in research on this collaboration. His work has suggested, "phonological processing is accomplished through a network including the left posterial and temporal parietal regions and Broca's area (Zatorre 848)," all left-brain areas. Pitch discrimination seems to emanate from a right-brain network of the right prefrontal cortex, the right superior temporal gyrus, and the right frontal lobe (Zatorre 848).

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Therefore, when the brain processes music, this function extends over both hemispheric regions and blurs traditionally accepted divisions between them. The primary actuator in this connection is the acoustic cranial nerve which acts as a switching station for the optic, oculomotor, trochlear, abducens, and spinal-accessory cranial nerves (Tomatis, as cited in Thompson and Andrews 182). In other words, the acoustic nerve channels not only sound from the ear, but also conducts other sensory inputs together, so our experience of the environment necessarily becomes a synthesis. Sometimes linguistic, musical, tactile, visual, and kinesthetic elements have such harmonious relationships as in the Yimou Zhang films Hero or House of Flying Daggers, that they are indivisible in perception and that the metasensory feelings of wonderment, aesthetics, or the sublime. This richness of input made possible by our physiology enables language learning with subtlety, vitality, and humor. Caroline Palmer and Michael Kelly’s (1992) study of song intonation makes several claims for the natural affinity of music to language. Songs exaggerate important stress and duration elements, and amplify normal vocal contours in speech (Palmer & Kelly 539). In this way, music emulates the way caregivers speak to their children, or motherese, which has been shown to increase their understanding and acquisition of language (Palmer & Kelly 539). For this to work correctly, the phrase structure and musical structure must coincide, which does not always happen. For example, traditional Chinese pentatonic music perfectly blends tone and song contours, but Chinese pop music sacrifices the tonal system of that language to preserve an imported, modern rhythm and melody. Folk music in particular should be
considered worthwhile for emulation because, unlike imported or modern music, it always matches the prosody of the language. In order to experience a culture's unique heritage and identity in depth, one must not merely read about them or look at pictures. It is best to follow members to ritualized, symbolic places in music, costume, dance, and song. This type of immersive environment is very healthy for language learning. As a basis for the compatibility of music and language, Palmer and Kelly claim that the 4-beat division of most songs coincides well with the linguistic foundation of binary alteration, or stressed and unstressed syllables (Palmer & Kelly 539). This matching of foundation units helps to increase memory for words and phrases when sung. Furthermore, "to the extent that two sources of rhythmic structure exhibit similar effects with no interaction, the study of musical composition and performance may aid the understanding of linguistic prosody" (Palmer & Kelly 539). Palmer and Kelly suggest use of music for richer encoding of language. When songs and words match in stress and accent, the learner can experience gains in comprehension of word stress, attention span, anticipation of new text, and memory (Palmer & Kelly 539). Pairing words and rhythm properly helps to hold songs together, and to improve the ability of the mind to recall it. A small change in the alignment of words and music can "capture the difference between a memorable and a forgotten song" (Palmer & Kelly 541), and determine the success or failure of learning the linguistic information. As a historical example, Palmer and Kelly indicate that the national anthem of the United States of America had a slightly different musical rhythm in the past, but through the aural tradition, musical accent and duration were aligned with syllables of greater linguistic importance. The phrase “prudently we hailed” used to be sung to four notes of equal length, but now has a lengthened first note and shortened second note to match the syllable stress (Palmer & Kelly 541). The music changed to conform to the language, as should any musical device encoding language information for later recall. Historically, the cases of composers who have experienced impairments to language or musical functioning are very well documented (Peretz 374). At age 57, the composer Vissarion Shebalin experienced a stroke that left him with no receptive or productive speech abilities. However, he was able to communicate through music, teaching students and composing an amazing 14 chorales, 2 sonatas, 2 quartuors, 11 songs, and 1 symphony, proclaimed by peers to be musically consistent with his pre-stroke production (Peretz 374). His condition is known as aphasia without amusia. Peretz treated a patient with an opposite reaction to her brain surgery, amusia without aphasia (Peretz 374). Her speech and intellect was intact, but she could no longer sing or identify familiar songs. Unlike the composer, however, music still elicited in her an empirically measured emotional response though she could not detect changes in pitch (Peretz 374). The case for separateness of these two intelligences is considered indisputable. Any discussion of musical abilities and the mind should include some mention of musical-savants. Because of a brain anomaly, some individuals have such limited capacity that they can never function independently. Despite this, they have a well-developed capacity for musical appreciation and sometimes become musical prodigies (Peretz 375).

Most parents know that listening to classical music will culturally enrich a child's life, but they lack the confidence to advocate this point to their children, especially because the music industry fashions listening as the one unassailable bastion of teenage identity. The 'it's good for you' argument automatically categorizes classical music with cauliflower, not palatable or delicious of itself. Music therapists often see the end of chains of misinformation and propaganda focused on the false hopes of parents eager for more musical fiber in their children’s cultural diet. There are musical solutions to specific language development problems, but one cannot expect reliable results without proper training in methods proven by credible test data.

2. Conclusion

Language teachers have much to gain from familiarizing themselves with the research literature related to the therapeutic uses of music and the effect of music on thought and behavior. Furthermore, insofar as language educators provide input towards patient treatment plans, music therapists should provide input towards student educational agendas. It is not common practice to invite a music therapist into the classroom setting, but few highly effective methods of teaching are. A therapist's musical expertise could bring new ways of integrating music into the language class. One area to focus upon would be the use of music for instruction in grammar. Whereas it takes little preparation to utilize songs for active class involvement, phrase and vocabulary acquisition, cultural appreciation, and pronunciation, grammar is seldom considered an issue that music can benefit. In the communicative method of language acquisition, students are encouraged to work into grammar intuitively, not by memorizing rules (Krashen...
Grammar drills have been discredited, and most teachers understand that the "structure of the day" methodology seldom teaches what it intends, because all students are at different levels of competence. Instead, teachers pay attention to what small groups of students are talking about, and address grammar issues as they manifest themselves. This method seems to work well, however, for languages with more pervasive grammar systems, direct instruction in the patterns of the grammar is in order. In finding new ways to exploit the close partnership between music, language, and gesture, we must pay attention to the reality that has always been there. Children are drawn to nursery rhymes, rhythmic activities, and songs as key texts in building concepts of reality. However, few professionals want their research or teaching to be called a mistake, and so it seems that only enterprising individuals will follow the directions that have been suggested here in an institutional context. Surely, the improvement of language teaching and music therapy practice can be seen as the goal, in itself a substantive reason to explore and innovate.

References


