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The Use of Music for Learning Languages: A Review of the Literature

Jon Weatherford Stansell

University of Illinois at Urbana-Champaign

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Abstract

Throughout time, healers, philosophers, scientists, and teachers have recognized the place of music for therapeutic and developmental functions (Bancroft 3-7). 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. The first part of this review focuses on the historical and developmental proofs of music's relationship with language learning. In part two, neurological theory on music and the mind are covered. Part three summarizes scholarly inquiry on the use of music for learning languages, especially those studies that could prove most instructive both for language teachers and for music therapists in the development of curricula.

The Use of Music for Learning Languages: A Review of the Literature

Described in the earliest cultural records, enacted throughout the development of infants, evidenced from cognitive scientists, and utilized by innovative teachers and therapists, the deep and profound relationship between music and language supports their discriminate, concurrent use to improve outcomes for language acquisition. Melodic recognition, contour processing, timbre discrimination, rhythm, tonality, prediction, and perception of the sight, sound, and form of symbols in context are required in both music and language. Like supportive sisters, they comprise "separate, though complimentary systems of structured communication... language primarily responsible for content and music evoking emotion" (Jourdain 293). Music positively affects language accent, memory, and grammar as well as mood, enjoyment, and motivation. Language teachers and music therapists alike should encourage the conjoined study of these natural partners, because communicating through a musical medium benefits everyone.

Music Pervades Life: Therapy, Development, and Learning

Throughout time and in all areas of the world, music's universal presence asserts its importance. 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 linguistic genres.

Thomas Bullfinch's *Mythology* describes the Muses' birth to Mnemosyne, one of the Titans, original rulers of the mythic universe (Bullfinch 22). Mnemosyne's main concern was the human memory, a primal dominion as important to the ancient Greeks as the sea and sky. Her daughters, the nine Muses, presided over song and prompted the memory. Seven of these divine beings used their "music" to inspire language, including the spoken genres of epic poetry, lyric poetry, sacred poetry, love poetry, comedy, tragedy, and history (Bullfinch 22). The eighth focused on, of all things, astronomy, and the last Muse did something different; through her "music," mortals became inspired not only to choral song but also to dance (Bullfinch 22). Each originating from these sisters of inspiration, the arts of poetry, tragedy, song, and dance comprised the classic Greek theatre. With music and language, the drama and dance of life can occur. The section on human development that follows will echo this powerful metaphor as it discusses the dual processes of language and music learning.

W. Jane Bancroft references Apollo and Dionysus, both of whom used music. These two, one the wise physician to the gods, and other a sensual corruptor of mortals, represent the modern therapeutic uses of music either "to assuage and soothe" or "to arouse and energize" (Bancroft 4). Music therapists utilize both types of music in clinical situations to relieve many kinds of psychological and physical stressors. Linguistic inadequacies resulting from trauma or delay often benefit from music therapy. Likewise, language students that lack familiarity with a target culture and have trouble expressing themselves can connect through the freeing influence of music. In these cases, the goals of the teacher closely resonate with those of the music therapist.

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.

The elements of movement, language, and song are also developmentally connected. Dr. Alfred Tomatis asserted that the ear's integration of information from sound and motor movements is crucial to the early nervous system. From aural input, an infant develops not only sound perception, location, and discrimination, but also the physical movements of verticality

and laterality, as well as language. Dr. Tomatis also described fetal and infant orientation to the melody contours of their native language, recognizing the mother's voice (as cited in Thompson and Andrews, 181-182).

The pre-existing patterns of music in the early development of language prove that the two are already long acquainted. Through its mother's body, womb, and amniotic fluid, a fetus cannot hear consonants; it only hears the musical vowel sounds. Carmen F. Mora claims,

> Discourse intonation, the ordering of pitched sounds made by a human voice, is the first thing we learn when we are acquiring a language. Later on, it is through interaction that a child picks up not only the musicality of each language, but also the necessary communication skills. Mora 149

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 sonorous units into which phonemes, the consonant and vowel sounds of language, are later placed (Mora 149).

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). Prelinguistically, music serves as the carrier for communicative intent.

The intonation contours within 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 of 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 61). The babble introduces words with consonant – vowel – consonant constructions and semantic placement in 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. No wonder, then, when an adult wants to infantilize a peer who complains too much, he will match the exact musical contour of that person's speech, exaggerate the prosody, and simplify the phonemes. Thus, "But I wanted diet, not regular!" becomes "Ba wa-wa daya na wewuwa!" He shows an intuitive understanding that the music carries similar content on a less complex level of linguistic sophistication. These examples indicate that music and language are intricately interwoven.

Chen-Hafteck adopts a similar stance and draws together developmental research in music and language to support this position. She asserts, "Music and language are the two ways that humans communicate and express themselves through sound. Since birth, babies start to listen and produce sound without distinguishing between music and language, singing and speech" (Chen-Hafteck 85). Infants can distinguish meaningful sounds from background noises. They notice the sound qualities of direction, frequency, intensity, duration, tempo, intonation, pitch, and rhythm (Chen-Hafteck 86). The musical and language systems both grow from this common source. For this reason, it is difficult to describe which utterances are pre-musical and which are pre-linguistic. As evidence of the close relationship between these two communicative systems, note the process that occurs when a person begins to weep while talking. Prosodic features of air control, pacing, tone, and tenor become more exaggerated and emotions break through in musical representations while language retreats into babbling.

This section concludes with the affirmation that the importance of music in therapy, growing, and teaching is supported by our cultural heritage and childhood development sequences. Language teachers and music therapists should collaborate on their joint venture, as the literature shows that they have much to offer each other, and they seem to be talking about the same thing, essentially. The seemingly important distinctions between a therapist's affective or healing outcomes and a teacher's cognitive or learning outcomes become less useful in practice, especially in a developmental context, because the proper functioning of the mind is dependent upon holistic wellness. In well-developed treatment scenarios, a music therapist collaborates with educators or language pathologists, but language teachers seldom if ever hear the therapist's perspective. The focus of this review will now change, for the time being, away from the historical and developmental proofs of music's place with language learning, and

towards neurological evidence of music's effect on the mind. Modern studies show how the mind develops musical aptitudes, and how intelligence research has revolutionized teaching.

Music and the Mind

Although the previous section has shown a close connection between music and language, discrete intelligences govern these two systems, which oversee different types of information. Though intelligence as a single construct began to be discounted in testing situations prior to 1983, in that year, Howard Gardner proposed that IQ be replaced by MI, or *Multiple Intelligences*. The candidates for intelligence status had to meet the following eight criteria:

> 1) Potential isolation by brain damage; 2) The existence of idiot savants, prodigies and other exceptional individuals; 3) An identifiable core operation or set of operations; 4) A distinctive development history, along with a definable set of 'end-state' performances; 5) An evolutionary history and evolutionary plausibility; 6) Support from experimental psychological tasks; 7) Support from psychometric findings; and 8) Susceptibility to encoding in a symbol system. Gardner 62-69

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 intonation 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. Carroll 393

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). So two aspects of language, pitch and phonemes, are handled separately, yet in harmony by a musical- linguistic collaboration. Children pay close attention to subtle variations in tone and timing, which enables them to learn their language accent flawlessly and which alerts them when an individual, regardless of advanced training, is not a native speaker. Likewise, musical people have increased aptitude in foreign language learning due to an advanced ability in perceiving, processing, and closely reproducing accent.

Zatorre's research indicates that much of the current discussion about brain architecture in relationship to music is overly simplistic. Because brain scans filter out 'background noise' in order to get clear visual images, one can describe concentrations of activity that suggest a neural

network, but in the case of music, "the precise neural substrate for specialized linguistic and non-linguistic processing mechanisms remains largely unknown (Zatorre 846). In Zatorre's review of Jourdain's (1997) book, he said that one of the important aspects Jourdain understood was the following:

> There are important functional differences between the two sides of the brain, and those differences are relevant to music in many ways. Furthermore, techniques such as brain scanning can yield all manner of information about how the brain processes patterns of sound. Nevertheless, that does not mean one can speak of something like musical appreciation as being located in one hemisphere or one region just because it lights up during a brain scan. Zatorre 2

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, Regina 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). Music is so complex that it defies being put in either hemisphere. Zatorre showed that the emotional response to music, which takes place in the paralimbic and neocortical regions, is disassociated from both the perception of the music, and from other types of emotional responses (Blood, Zatorre, Bermudez, and Evans 386).

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 lend themselves to 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 new 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 “proudly 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 quatuors, 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). Peretz observed this condition in an autistic young adult, Pauline, whose IQ is 70. She first spoke at age 2 1/2 and used two-word sentences at 4 years of age, when most children have a thoroughly functioning linguistic system (Peretz 375). Six months before uttering her first word, Pauline began playing the piano and has since then progressed in skill level at the moderate rate of a normally functioning amateur pianist. What makes Pauline unique is her ability to play the tune of a song she has heard only once, while simultaneously embellishing harmonies and improvising musical flourishes (Peretz 375). It helps that she has absolute pitch, a rare gift. Peretz notes,

> These two skills reveal without ambiguity a fully functional musical system in an otherwise low-functioning individual... Autistic individuals provide strong case demonstrations of brain specialization for music because their musical abilities emerge as an isolated area of normal functioning. Their musical proficiency suggests that music must be subserved by music-specific mechanisms, which are left intact by the autistic brain pathology. Peretz 375

Because songs contain so many different components, Peretz and her colleagues desired to see whether the processing of melody and lyrics of a same song is separable (as cited in Peretz 378). For the scientific description of how they came to this conclusion, read her account as follows,

> Event-related brain potentials have been recorded while musicians listened to excerpts from an opera sung without accompaniment. Excerpts were ended by semantically congruous or incongruous words sung either in or out of key. The evoked responses associated with the semantically incongruous sung word showed a negative waveform component that peaked 400 ms (N400) after word

> onset. In contrast, the brain potentials evoked by a congruous word that is sung out of key showed a late positive deflection (P600). When the sung word is both semantically and melodically unexpected, the obtained waveform shows an additive effect of the N400 and the P600. This electrophysiological pattern suggests that the monitoring of speech and music in songs is performed by independent neural processors. Peretz 174

Willi Steinke, Lola Cuddy, and Ronald Holden (316) also found that musical intelligence is independent from the language faculty and all other faculties, but through a different methodology - comparing scores for 100 participants, 41 males and 59 females, on 8 music tests to scores from 6 standardized psychological tests of cognitive ability. The reason for following this question is physiological, insofar as "distinct neurological processes revealed by brain electrical activity, cerebral blood flow patterns measured with positron emission tomography, and patterns of dissociation found in neurologically compromised individuals indicate mental operations specific to the domain of music" (Steinke, Cuddy, and Holden, 1997 316). From a conceptual standpoint, music and language must be dissociated, or else there would be no possibility for cooperation.

The Steinke, et al study shows that two of the sub-components of music, perception of tonal structure and pitch memory were unrelated to performance on tests of nonmusical cognitive skills (Steinke, et al 314). In so doing, the researchers do not rule out facilitative effects. Indeed, they claim that "music listening and performance engage a variety of processing levels – from elementary sensory motor encoding to higher level relational and symbolic representations" (Steinke, et al. 316). So music's effect on other issues is almost certain, but it is a difficult effect to operationalize, and as such, becomes subject to criticism.

It is crucial here to insert a cautionary note that parents, teachers, and practitioners alike may follow. The complicated relationship between music and the mind is often oversimplified when experimental research in music is made accessible to the public. Frances Rauscher, Gordon

Shaw, and Katherine Ky's study, in particular has generated great, recurring interest. In it, they tested 36 undergraduates to determine their IQ. Later, after listening to eight minutes and 24 seconds of Mozart's Sonata for two pianos in D major, the students scored higher in the spatial reasoning and mathematical sections (Rauscher, Shaw, and Ky 46). Rauscher uses the results to conclude that music can be a means to enhance higher brain functioning (Rauscher, et al. 47). This can be seen as a generally positive thing, but misinformation has resulted from the "hype" that has sprung up around this concept.

The Rauscher et al. study showed that classical music could improve test scores, connecting a neglected cultural good with a measure for future success in school and life. Mozart suddenly became "hot" and stores sold out of his compositions. Billie Thompson and Susan Andrews (174) wrote *Historical Commentary on the Physiological Effects of Music* in order to combat misinformation around this issue. They explain in brief Alfred Tomatis' use of Mozart's music in therapy, which is different from an average listening experience:

> Those who have listened to the sounds of Mozart presented through the Tomatis Electronic Ear are no strangers to distorted sound... Tomatis developed ways to distort sound (high frequency filtered Mozart, with electronic gating) in such a manner as to tune in listeners to what they were missing. Thus, the method opened new pathways in the brain, which provided a wider perception of incoming information, and even created more of a desire to communicate with and learn from others (Thompson and Andrews 182).

This therapeutic device produces modified Mozart for circumstances of lower auditory awareness, specifically to improve communication. Few who support the popularized view of educational music would recognize any qualitative difference between it and the CD player with speakers that attach to a pregnant mother's belly. Based on broad overgeneralization of music's implied effects or from conclusions drawn from methodologically flawed research, proponents claim music as a panacea for a variety of ills, both educational and cultural.

Don Campbell's book "The Mozart Effect for Parents" gives an excellent example of how universal the promised effects of music become when the focus shifts from clinical use to recreational use (Campbell 10-13). According to Campbell, music can enhance a child's skills in academics, feeling-expression, and social connection to family, community, and culture. It aids in the development of 1) "intellectual potential" of language, study habits, reading, math, fact-memorizing, visual and aural memory, 2) "emotional potential" of getting along with others, moving, creating, interacting with grace and sensitivity, expressing emotion and relieving stress, and 3) "spiritual potential" of hearing and trusting the 'inner voice." Finally, Campbell mentions the best effect of music, which is primarily for the caretaker. One could refer to his fourth effect as 4) "caretaker potential," that is, capturing joy with the infant, music embracing you both, sharing dance/song, sharing love, and singing life's song (Campbell 13).

Such worthy goals as these span all human abilities, and are proper for a philosophical attitude towards music. Early developmental play will indeed lead to a child's attachment to the primary caregiver, crucial to proper emotional development. The problem lies in the spurious suppositions one could make, based on music's implied effects. For example, remedial first graders who receive music instruction for 7 months caught up with peers in coordination, mathematics, and reading (Campbell 16). This type of intervention contains a repeated measures fallacy, because one cannot reliably tell what effect natural development, so variable in grade one, had on intervention outcomes. To encourage parents to advocate for their children's education, scientific proof must be paired with good publicity. However, music's place in a balanced perspective on education should not be hyped beyond its capacity to produce empirically measurable results. Unsubstantiated broadening of music's effect on learning calls into question its use as a learning tool, as recent history in the case of "Suggestology" has shown.

In the late 1970's, Suggestology became all the rage in foreign language teaching. One of the primary activities was reading with music. A teacher would have her students listen and relax while she played music in the background and read from a foreign language text, using emphatic vocal inflection with Classical music such as Mozart, and normal inflection with Baroque such as J.S. Bach (Lozanov 1). During the entire decade of the 80's, primary advocate Georgi Lozanov was silenced by the Communist-controlled Bulgarian government. Therefore, the method was free to be popularized and modified by proponents of “super-learning,” hypnosis, and "guided conditioning." They published amazing, unsubstantiated results (Lozanov 1). Music lost its place in the language classroom, except for "culture days" or on the Fridays that no student wanted to listen.

With the mass popularization of Mozart for the mind and its exploitation by non-specialists, another challenge to music's credibility has emerged, similarly born of compelling theory, misapplied research, and well-intentioned enthusiasm, but with the added measure of commercial profitability that feeds the multi-million-dollar educational toys industry. Looking at Campbell's promises, administrators could expect a positive influence of music on test scores and school prestige, when no direct connection has been proven. In two Southern states for a short period, the governors instituted a program whereby hospitals distributed Mozart to pregnant women free of charge, hoping that the babies would experience some effect.

A specific problem with prescribing classical music in a utilitarian manner, rather than expressively, is that a child can easily read duplicity. 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 ‘choice’ 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.

This part of the review has conclusively shown the complexity and pre-eminence of the musical intelligence among other intelligences. This is a triumph for music teachers and musicians who believe society's emphasis on math and science leads to the detriment of the arts. One of the drawbacks of departing from a traditional perspective of unified intelligence, however, is that it makes the choice of teaching methods considerably larger. With a new sense of theoretical legitimacy, teachers should put music in their lesson plans and depart from textbook teaching methods. Curriculum developers must have certain criteria to judge effective techniques coming from a universe of possible topics. This will help not only to identify useful methods, but also to weed out the unsubstantiated claims that only cause confusion.

Teachers and therapists alike should take the results from the following research to heart, using the aspects that showed the most promise, and experimenting with the variables in the study. The results show that some activities are more closely related, like body movement and music, song and language. However some intelligences do not work to facilitate language learning. Looking at and following parts schematics, for example, has never been shown to make "handy" individuals literate. Any language teaching method must be accompanied by natural language in order to generate fluency. Using music in a language acquisition context generates interested students, which some teachers believe is proof enough, but this review will show other

effects, including higher vocabulary acquisition, a natural context for words, extra-linguistic clues to meaning, and exaggerated prosody, all of which aid second language acquisition.

Music and Language: Supportive Sisters

In his book *Music, the Brain, and Ecstasy*, Robert Jourdain (1997) makes several meaningful points regarding the competitive positions of language and music, in terms of brain structure and functioning. "Although minds communicate through many sorts of symbols and gestures, only language and music… operate on a large scale and in great detail" (Jourdain 247). These abilities seem to be somewhat lateralized in the two temporal lobes, the left one being 90 percent better at recognizing words, and the right one about 20 percent better at recognizing melodic patterns (Jourdain 280). These two systems function in very different ways, supported by the left-brain's particular concern with "modeling relations between events across time, while the right brain favors relations between simultaneously occurring events" (Jourdain 281). This has implications for their facilitative roles. Language almost exclusively "represents the contents of the outside world in a symbolic way", while music seems to "reenact experience within the body, mimicking experience by carefully replicating the temporal patterns of interior feeling in a world of turbulent flow" (Jourdain 293, 296).

These tensions between feeling/ meaning, time-space/ simultaneity, words/ melody, and representation/ reenactment are at the core of being human. Jourdain writes, "The two temporal lobes compete fiercely, and failure on one side can make the other stumble" (Jourdain 291). This suggests to the imagination that music and language, the primary concerns of the temporal lobes, are a pair of sisters, close in age, opposite in personality, yet the best of friends. Like close sisters, music and language help each other in the process of learning human expression, a common goal. Interconnections between the musical and linguistic areas enable music to assist in

learning vocabulary and phrases, which tasks are governed by the linguistic intelligence. High musical ability is common among multilingual individuals and professional singers with thick accents otherwise still sing in a standard dialect. With this appreciation for the assistive place of music in the mind, researchers must try to discover ways that music can more effectively awaken students to language learning.

This review suggests the conjoining of music and language learning, which inevitably posits a shift in perception for music therapists and language teachers alike. Specific examples of ‘musical language teaching’ as well as ‘music therapy for language’ will indicate areas for curriculum change in both fields. Insofar as the author is a language/ literacy teacher, he believes it proper to make suggestions intended to change the current-traditional stance on music in the language classroom. However, as a non-therapist, he will leave the explication of music therapy techniques for language to one of the previously mentioned scholars, Joanne Loewy. In a recent article, “Integrating Music, Language, and the Voice in Music Therapy,” she mentions themes from a web-published previous version of this review, while indicating the implications of music-language initiatives for music therapists (Loewy 1). A summary of Loewy's article, which concludes this section, increases the scope of this review to reach out to the music therapy community.

Music therapists must be made aware of the fragile status of music in the language classroom. Musical language teachers face institutional pressures to whitewash their classes in order to make them "serious," "challenging," or "test-driven." In many schools, *No Child Left Behind* (*NCLB*) policies for testing keeps language teachers from integrating more innovative methodologies, because they must "teach to the test." Furthermore, recent advances in language acquisition methodology have focused primarily on activation of a real context through problem-

solving and social interaction, not on joint singing and dance, although these are equally as "real." Some of the most exciting and supportive studies for music-language joint study have been done recently, but the reader should note that while the validity of some results have improved, in part due to advances in language teaching generally, and in part due to the nature of the tested outcomes, the basic premise of all of these studies has been the same Muse-inspired impulse to choral singing and dancing.

Fawn Whittaker's article outlines the uses of music in class through an effective literature review (Whittaker 3-5). She asserts that songs aid in all four major language-learning areas – in listening, speaking, reading, and writing. Presenting a new song to her class, she

> 1) plays the song as students silently look at the words; 2) has students repeat the words without singing them; 3) points out new vocabulary, idioms, grammar items, and give needed pronunciation cues; 4) plays the song again, letting the students join in when they feel confident about singing along. Whittaker 11

Many of the following studies fall into this pattern. In a typical music-language context, a teacher would play a song to awaken perception of musicality, students would focus on the rhythm, learn the lyrics that follow, and the student would leave humming the song. This effective, gradual method could lead to the out-of-class associations that are crucial to language learning. Simply attending class a few days a week and doing homework does not a proficient language speaker make, but adding songs encourages rehearsal.

Whittaker also integrates songs with teaching or reviewing grammar. The song can be used as an introduction for the drill, or perhaps in place of the drill (Whittaker 9). This hesitancy to abandon drills is one of the enigmas in language teaching; they seem familiar and correct so even though they have poor results, few are willing to give them up. Music will provide a break from class, so necessary when the primary method is drilling, and the students would have opportunity to learn patterns through memorizing the lyrics, perhaps without even noticing it (Whittaker 9).

In an interesting example of an issue explained and defined by Murphey a few years later (58-59), the Song-Stuck-in-my-Head-Phenomenon, a Finnish colleague of Osman and Wellman related to them that songs helped her pass grammar tests in class because she easily recalled passages from songs that demonstrated the correct answer (as cited in Whittaker 9). This method of auditory recall is crucial to language learning, and can be used to reinforce grammar concepts too complex for adult language learners to grasp in a few lessons.

Australian musicologists Macarthur and Trojer (211) claim that because music and language share essential qualities of rhythm, pitch, timbre, and dynamics, methods for teaching each of them, such as Orff-Schulwerk and SGAV, could work together to teach them both. Carl Orff's (1895-1982) method for teaching music involved young people spontaneously creating improvisational tonal constructions. They use song, rhymes, xylophones, and percussive instruments to make

> ...very simple and beautiful musical forms, which are easily learned by young children.... Orff-Schulwerk treats music as a basic system like language and believes that just as every child can learn language without formal instruction so can every child learn music in a gentle and friendly approach. (Wikipedia)

SGAV, the Structural Global Audio-Visual method likewise prescribed meaningful contexts for language learning. The goals of Macarthur & Trojer's blended 'musico-linguistic' technique are to help learners develop auditory memory, intonation, rhythm, pitch, gesture, body movements, and mime (Macarthur & Trojer 215).

Macarthur and Trojer's suggestions are reaching towards social interactionism, currently the most successful of language teaching methodologies, in part because it moved away from inefficient elements, such as vocabulary lists and rote drills, which mainstream SGAV had not yet abandoned. The Musico-Linguistic approach entails:

> (a) presentation of whole, then explanation of parts; (b) communication through sound, gesture, and movement; no previous knowledge necessary; (c) abstract concepts are demonstrated more than explained; (d) progression at own rate and in own direction; (e) learners create material based on hypothesis testing; (f) group participation encourages learner-to-learner interaction; (g) focus on cognition, auditory awareness and aural memory; (h) emotionally charged, uninhibited, confidence-building setting; and (i) repetition and question and answer techniques. 214-215

This musico-linguistic system has three levels. The beginning level involves reciting phrases from written directions along with a metronome (Macarthur & Trojer 215). Afterwards, students chant the text in canon format, which weaves rich, syncopated counter-rhythms through the score and increases enjoyment. The intermediate level takes learners into a question-answer session with the teacher or other students, encouraging imitation, improving memory, and negotiating meaning (Macarthur & Trojer 218-219). The advanced level requires students to write out a text with a musical representation of its rhythm, and perform it (Macarthur & Trojer 220). Chanting the text in canon introduces a polyphonic quality to the sound that deepens understanding of the phrase prosody and improves recall.

Macarthur and Trojer (221) recommend several other activities: reciting a text while clapping its rhythm, leaving out words from lyrics to rehearse them mentally, and even making the text's rhythm into a dance that the students could perform. These techniques enrich musical methods for language by emphasizing rhythm and activating the body through *kinesthetic* intelligence. Unfortunately, the article gives no evidence of any teaching performed using the blended musico-linguistic method. Since that time, research has shown the effect of music and movement for attention, excitement, reduced inhibitions about performing and speaking, and memory and retention.

The next two articles come from a special-needs perspective. Katherine Leung discusses the benefits of music and movement for language development in deaf, autistic, and other disabled

children. Training in supersegmentals, the pitch, timing, duration, tone, accent, and contours of language, facilitates both perception of receptive language and production of expressive language (Leung 1). She points to the similarities of music and language, the two sisters:

> The resemblance between the construction of a music language and a spoken language makes music a very important aid in speech therapy. Van Uden's theory of music describes the close relationship between rhythm of music and rhythm of speech as logical. His model lesson has sound suggestions for a play song where speech, language, music, and dancing can be incorporated (Leung 15).

Although separate in processing, the musical and linguistic centers of the brain can share in creative meaning productions.

Leung (5) focuses on the prosodic (i.e. melodic) components of language. She defines patterns of stress and intonation as the main units in language, themes which are later followed by Loewy (48) and Mora (149). This differs dramatically from the current-traditional method of language teaching practiced in most contexts, which insists that language is best taught through instruction in vocabulary and the rules to combine them. The efficacy of such instruction, though well thought of by most teachers because it is textbook driven and relatively easy to administer, is not very high. The musical method focuses on having fun with the language and letting words come as they may, and as such has more in common with communicative language learning methodology, which utilizes social interaction, small groups, and peer discussion. Music was once considered one of the only ways to get some relief from doing vocabulary quizzes and grammar drills, but now it can be integrated into a more naturalistic way of learning language.

Gfeller advises the music therapy for linguistic memory in learning disabled children (28). Music is a vital component of these youngsters' education, because it may utilize one of a small number of cognitive abilities. Gfeller mentions children's ability to sing commercials off the TV before they are old enough to understand the meaning, which supports the assertion that musical

performance precedes linguistic awareness (28). Music assists learners not only with acquisition of vocabulary, but also mastery of language-relevant information. In a previous study, her musical encoding of fact-item math data produced significantly greater recall in groups that had a musical mnemonic treatment than those using verbal rehearsal (as cited in Gfeller 29). Although language teaching has moved away from the tenets of call-response repetition, repetition is still part of many programs today.

The most successful melodies for these children were similar to ones that they already knew. Using mnemonic principles, she advocates using a song that rhymes and chunks items into packages of seven plus or minus two (Gfeller 29). This is true of the alphabet song, otherwise known as "Twinkle, Twinkle, Little Star." Using rhythm, rhyme, and categories to organize the information makes any daunting task seem simple. How many adults subvocally rehearse this song to remember the position of a letter in the alphabet (Whittaker 3)! In three different schemata, 1) multiple intelligences (Gardner 41), in which the musical aids the linguistic intelligence, 2) cognitive factors (Carroll 393), in which the base auditory perception assists the general memory, and 3) areas of the brain (Jourdain 280) in which the right temporal lobe helps the left temporal lobe, singing enables language to stay in the memory, where it can build up connections. Despite such support, music in the classroom is still a sideline issue.

Suzanne Medina (4) combined three modes of instruction by teaching forty-eight second graders of limited English proficiency through stories, song stories, and illustrations. Her justification for comparing non-traditional multiple methods came from the understanding that students learn an incredible amount of language before they ever attend school. The non-scholastic sources of language are much less ritualized, organized, and stressful than a

classroom, so it made sense to try methods that more closely resembled childhood, which is generally filled with music, stories, songs, and art (Medina 1).

Medina's guide throughout this article is Stephen Krashen, author of the *input hypothesis*, a naturalistic, communicative approach to language acquisition. "We acquire [language] by understanding language that contains structure a bit beyond our current level of competence (*i+1*)" (Krashen 21). This type of language occurs naturally when people talk, in part thanks to context and extra-linguistic information, and production ability emerges as a result of this successful communication (Krashen 22). The input hypothesis has become the core of the social interaction hypothesis, currently followed by many programs, which also stresses learner output with negotiation of meaning and feedback, in a realistic communicative context. Medina suggests,

> Vocabulary is incidentally acquired through stories because familiar vocabulary and syntax contained in the stories provide meaning to less familiar vocabulary, and picture illustrations clarify the meaning of unfamiliar words. Krashen has demonstrated that language acquisition results when the target language item is heavily laden with meaning. This is made possible by providing extra-linguistic support such as actions, pictures, and context that make linguistic input comprehensible. Medina 6

Medina seems quite committed to legitimizing music's place in the classroom, which makes her paper entertaining and informative to read.

To test her theory, Medina divided the children into four groups of twenty (Medina 4). One group heard a story sung; another had it told to them. A third group had illustrations accompanying the story song, the fourth, story with pictures. She then compared the results of the four groups as they performed on a vocabulary test on two occasions (Medina 8). In this study, the children learned a similar amount of vocabulary whether the instruction was by song or by story. There was no statistically significant difference between the four groups from pre-

and post-test scores at the .05 level. When the results were examined, vocabulary gain scores were appreciably, but not significantly higher for those groups using music or pictures, and the highest gains were in the group with both music and pictures (Medina 15).

The conclusions for the use of music in the second language classroom are clear. Since music can be as viable a vehicle for second language acquisition as stories, then songs should not be treated as extra-curricular entities (Medina 18). For relatively small investments in time, gains in vocabulary are possible, with facilitative effects in acquiring more. All of the participants reported enjoying song stories more than regular stories (Medina 14). Story-songs are valuable because they use different words and phrase structures than standard speech, and illustrations help to make these words comprehensible (Medina 18).

The music and illustrations had a visible effect on vocabulary acquisition according to the tests, and they have the added benefit of being fun and low-cost. The vocabulary gains in songs could be increased with another type of extra-linguistic support, namely gestures (Schunk 118) . Because story songs are more motivating and naturalistic in speech intonation patterns than regular reading primers, they become children's' favorites. This author recalls reading aloud a highly rhythmic children’s story several years ago. It remains memorable because these simple rhythmic phrases were inscribed upon the child’s heart through frequent reading, and upon the adult's mind because of rhythmically-assisted recall over the next few days.

Tim Murphey first made the connection of the song-stuck-in-my-head-phenomenon (SSIMHP) to the language acquisition phenomenon of Din (Krashen, 1983), the involuntary rehearsal in a learner's mind of previously heard foreign language talk (as cited in Murphey 53). The SSIMHP is "...the repeating of a song in one's head... usually occurring when audition is followed by relative quiet, as with the last song you hear before leaving your home or car."

(Murphey 58-59). Far from being a simple annoyance, Murphey believes the SSIMHP enables involuntary subvocal rehearsal of linguistic content, which then has the effect of deepening the memory traces of this content in the mind. In particular, pop songs can aid language acquisition because the pronouns 'you, I, me, my'; as well as imprecise time, place and participant references enables the second language learner to pretend that he or she is an interlocutor in conversation with the singer (Murphey 59).

Brown and Perry hypothesized that combining several learning strategies would result in better retention of vocabulary (655). The premise of their study was the belief that long-term retention depends on the quality of information processing. They asserted, "As one moves from the shallow sensory level of processing to the deeper semantic level, memory traces become more permanent" (Brown and Perry 657). The evidence of their study, examining Arabic students of English who were working on a vocabulary building exercise, supports this assertion.

These researchers began by comparing the students' level of correctness using a keyword approach, a semantic approach, and both of them combined. The semantic level of processing, putting real meaning to the word, was considered deeper than keyword level in which they associated a similar-sounding word in the native language in a sentence containing the real meaning of the word (Brown and Perry 657). The auditory memory of a word could trigger a meaning response through the keyword method, but this was defined as a "shallow" occurrence. The semantic method was more effective than the keyword one, but using both methods improved outcomes over either of them alone (Brown and Perry 665).

Rather than support hypothetical distinctions between types of learning, this shows that learning effectiveness differs according to method and task, but that combining methods is best. "When elaboration occurs at a number of levels, memory traces are even stronger. …These are

not the only strategies to be considered… in order to gain an overall picture of the optimal use of learning strategies for vocabulary learning" (Brown and Perry 665-7). After a teacher made students comfortable with real sentences, she could integrate musical, movement-oriented, pictorial, and numerous other strategies that have yet to be tested empirically.

Regina Richards references the emotional nature of music in her discussion of its use in a playful teaching environment. She prescribes "music, rhythm, and movement to create a relaxed, stress-free learning atmosphere" (Richards 109). She later addresses its cognitive uses, specifically for language acquisition purposes: "General classroom music activities that include singing and rhythm help enhance the development of auditory discrimination skills, including integration of letter sounds, syllabification, and pronunciation of words" (Richards 109). This voice from a elementary educator suggests that many teachers have taken steps to bring music into the classroom, despite difficulties. An experimental elementary school that the author visited has a grand piano in the foyer and used to have soft music playing continually in the hallways. The school was founded on MI theory and the idea of music and art integration across the entire spectrum of classes. However, when *NCLB* testing requirements began, the visionary principal left, support for MI projects waned, and the music stopped.

From her experience teaching music in Europe and Australia, Patricia Beaton (28) describes benefits of using music in the early childhood language classroom. She explains that call and response curricular songs give students a love of culture, improve their sensory awareness, encourage turn taking, and increase improvisation skills. Singing, chanting, or clapping in large circle groups, then moving to smaller group exercises helps to reduce a child's anxiety and increase confidence when it becomes his turn to respond (Beaton 31). Beaton mentions a study in which two groups of children learned a grammatical concept in French, one group using

traditional methods and the other using song. After 3 months, only the children who learned through song could remember the grammar rule (Beaton 30). The singing children clearly continued to sing the song after the initial class, which repetition ingrained the concept along with the lyrics and melody.

Songs also promote the use of hand gestures, puppets, and rhythmic movement, and the format enables public performance. All of these encourage intelligences that are not addressed in other subject areas (Beaton 34-35). Call and response songs would allow the teacher to require difficult responses from more advanced students. One side effect of group activity is including beginning children in the same group as more experienced learners, which increases the quality of peer-to-peer learning. These benefits can collectively exert a profound effect on the overall learning outcome.

Wilcox investigated the effects of classroom singing among adult ESL students at a community college. Among the many studies she reviewed, music was shown to improve pronunciation memory through "organizational framework, linear time order, lowering affective barriers, repetition, residual learning, expectation, anticipation of patterns, resolution cues, schema or gestalt cues, and anchors for memory" (ii). Her study supported these findings; she claimed that the parallel structure of the song and lyrics cued the students' memories. The song also helped to "establish the prosody of the language" and to enable "repetition of phrases in the classroom singing mode" (118) to further practice vocabulary. Wilcox noticed that the students enjoyed the singing, and thought that they were quite likely to rehearse it residually, adding to the learning effect. This study showed that when students are not shy or reserved about participating in classroom activities, songs for language learning could be quite successful.

Christison illustrates how multiple intelligences could work for the second language acquisition classroom. She found that many students learned better, when she addressed different intelligences (Christison 10). MI added depth to their self-awareness of speech behaviors and the different ways they learn new linguistic information. She uses David Lazear's teaching sequence to organize her classroom presentations. Most lessons that teach with multiple intelligences have four stages. They are: 1) awaken the intelligence, 2) amplify the intelligence, 3) teach for/with the intelligence, and 4) transfer the intelligence into life (Lazear xix).

Christison encourages the use of many other intelligences in language acquisition, especially since *ESL* (English as a Second Language) students are a non-homogenous group studying in different fields. She finds that "the traditional second or foreign language classroom has favored visual and verbal delivery systems," to the detriment of students that "exhibit other intelligences" (Christison 10). Although her assertions are compelling, her study shows no proof of learning, admittedly a difficult task in any case. Students who do not excel with traditional delivery methods need to be addressed differently, but the proper nature of that instruction, whether it is musical, logical, or some other means may depend more upon the teacher's individual abilities than student needs.

Heather Schunk found perhaps the most effective kinesthetic activity for language learning in her research to determine the effect of singing and signing in ASL on elementary ESL students' acquisition of vocabulary (Schunk 118). Four groups of twenty children each were given a pretest to check their vocabulary comprehension. Then they each attended different training sessions, including 1) spoken text, 2) sung text, 3) spoken text paired with signs, 4) sung text paired with signs. (Schunk 110). Schunk then administered a posttest to determine the children's ability to identify gains in receptive vocabulary identification. Results from this study

indicate that all four groups made significant pretest to posttest gains, however this is mediated by the repeat measures fallacy, in which repeating the same test brings better results. From groups one to four, there is a steady gain of vocabulary recognition, but children who heard the text sung and watched the signs had a significantly higher gain over children who only heard the text spoken. They averaged 6.5 words learned, over the text group's 2.5 words. With these results, music and movement enrichment of language teaching content becomes not an option, but a compelling next step in effectiveness.

Likely several secondary factors raised the effectiveness of the singing-signing presentation. Signing presenters are hyper-animated in facial and body movement, compared to their speaking counterparts. This likely enabled the signer to gain the children's attention much more. Singing and signing in tandem enable children to predict what will come next, which is a factor in hypothesis testing, the method by which we learn language. The children learn the song and can repeat it for learning purposes later. Furthermore, when the children mimic the signer, as they do when choral leaders direct or favorite cartoon characters dance, they form peer connections through coordinated group movement. The sociality of the group rises, because children begin seeing what others are doing. The adrenaline crucial to long-term memory begins to flow and children accept their status as active learners. These are not considered mitigating factors, because everything mentioned is typical of this type of presentation.

Carmen F. Mora (150) agrees that music and language should be used in tandem in the *EFL* (English as a Foreign Language) classroom. She asserts that verbal practice associated to musical information seems to be more memorable, using melody with new phrases lowers the student's anxiety, and foreign sounds paired with music will be stored in long-term musical memory and accessible for mental rehearsal and memorization (Mora 150). Repetition is one of the basic

ways the brain remembers material, and is known proverbially in Russian as *mat' ucheniya,* the mother of learning. Mora considers this function vital when she describes why using a melodic approach works: "The musicality of speech has an effect not only on the pronunciation skills of EFL students but also on their entire language acquisition process" (Mora 148). Music and the musicality of language teaching provide a rich environment of sound and cuts out other auditory distractions (Mora 148). The musical method enhances the EFL learner's awareness of sounds, rhythms, pauses, and intonations and encourages them develops linguistic fluency through imitation and subvocal rehearsal (Mora 152).

Parents know that the first-language learning environment is characterized by very different behaviors than the typical second language acquisition classroom. The previous studies strive to put learners in an affective environment closer to that of first-language acquisition. Songs help to relax and unify a class much like a family. When teachers add musical contours to simplified language input, they can expect higher motivation and comprehension from learners. Music also makes cultural ideas accessible to students and increases the capacity of the working memory, while providing a structured context for long-term recall of words and phrases.

Music's effect on language acquisition has been proven in clinical studies by music therapists, who see similar results. Joanne Loewy (3), particularly has identified four existing modes of musical support for language learning: 1) in prelinguistic stages, 2) in developmental context, 3) in recovery, and 4) in psychotherapy. To aid infant vocalization, Loewy encourages a technique entitled 'tonal vocal holding.' The music therapist assists the patient in exploration of sound, breath, and voice, which culminates in the production of a primitive vocal expression. Loewy describes a natural learning context where an 18-month old mirrors back the melodic contours of his sister's speech as a type of default behavior, and adds mimicked consonant

sounds when he is paid attention to. Nordoff and Robbins likewise describe how Edward's tiny vocabulary increased dramatically and he began interacting with others as his singing-crying was musically supported by therapists. Through vocal repartee using phonemes, mirroring and the child's name, "his singing-crying apparently brought some order into his relationship with us" (as cited in Loewy 65).

For recovery purposes, music therapy can also enable patients to enrich their linguistic expression. Loewy describes an Alzheimer's patient with frontal lobe damage, which induced a limiting of speech and an altered perception of reality. During a session, he and his wife sang their old high school song. She concludes, "Music's ability to lodge and then unlock memories and verses from specific moments in time may be one of its most potent qualities in recovery potential" (Loewy 11).

Conclusion

The researchers in this literature review show conclusively that music and language should be studied together. Music's success is due, in part, to primal human abilities. Music codes words with heavy emotional and contextual flags, evoking a realistic, meaningful, and cogent environment, and enabling students to have positive attitudes, self-perceptions, and cultural appreciation so they can actively process new stimuli and infer the rules of language. The universal element of music can make the artificial classroom environment into a "real" experience and make new information meaningful, bringing interest and order to a classroom. Zatorre (2000) puts it well:

> Imagine a distant alien civilization observing our human world from light-years away. After some time simply watching us, they would probably be able to discern without much difficulty, how and why we eat, breathe, walk, sleep, and mate. They might even figure out that we used sound signals emitted by our mouths to communicate with one another. But imagine how perplexed they would be by music: people all over the planet pound on objects of all sizes, blow

> through tubes, scrape or pluck strings and vibrate their vocal cords, sometimes for hours on end, to make all manner of strange noises, all with no evident explicit purpose. In fact, we ourselves do not have much insight into this inexplicable realm of sound: most people listen to music because they like it, and no more explanation than that is needed. 1

Language teachers have much to gain from familiarizing themselves with the research literature related to 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 21). 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.

This author has developed a new curriculum for teaching the Czech language, which has students learning simple sentences with books of family pictures, singing five-part canons with grammar concepts embedded in them, chanting the pronoun endings of prepositional phrases,

rhythmically moving, listening to different instruments, listening and reading, and having dialogue with native speakers. This system, the Phrase-Exemplar-based Multisensory Method (PEBMSM) has been used by language trainers, but is primarily intended to be a demonstration of the possible uses of music in a language learning context. For a copy of this, please contact the author.

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.

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