

## Music Unlocks Brain Functions

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### **Article:**

Soccer, computer classes, scouting, and on and on; today's children have so many activities to choose from, it often seems as if their days are programmed from dawn to dusk. In the midst of all this, why should parents make certain their children are engaged in musical activities? Is there anything special that music has to offer? Participation in music instruction has many benefits and outcomes.

Musical activities may help students develop leadership skills, enhance self-esteem, promote esprit de corps, or foster a work ethic and dedication to excellence. But, as valuable as these outcomes are, they can also be attained through other experiences. Joining a chess club might, for instance, provide many of the same benefits. What can be said, then, about music that is unique, and is there anything about it that would make it necessary for all children to have the experience?

As a starting place, consider that a musical experience cannot be replaced by any other. Just as reading a novel by Dickens cannot be compared to viewing a painting by Van Gogh, so watching a ballet cannot replace hearing a symphony by Beethoven. Even if a novel, painting, ballet, and symphony were all concerned with the same idea, what one gets from each experience is unique. Or, imagine going to a funeral. At some point words will be spoken in the form of a eulogy, and there will also likely be music. The words cannot express what the music does, nor can the music substitute for the words. Both are unique expressions of that which is shared among the mourners.

Suppose one admits that music is, indeed, a unique experience but contends that that alone does not make it necessary for all children to have a musical education. After all, bungee jumping is a unique experience, and we don't say everyone ought to experience that. Furthermore, nearly all children engage in music outside of school (e.g., watching MTV, listening to favorite CDs with friends, playing or singing in a "garage" band or church choir) so why should it be included as part of a school curriculum? The short answer is that music provides unique and invaluable insights into the human condition. To unpack the implications behind this short statement requires two brief digressions — to define education and to look at modern conceptions of human intelligence.

What is the purpose of an education and what do we want our schools to do? Because answering these questions would entail another series of essays, let us begin with the following simple definition: "The purpose of an education is systematic development of the mind and capabilities of every child." In practice, our educational system has focused on the specific mental capabilities of language and mathematics. This narrow conception of human intelligence is reflected in curricula, standardized tests of academic achievement, and intelligence tests.

Recently, psychologists and others have begun to decry this myopic view and have argued for an elaborated view of human intelligence that more fully encompasses a broader range of human potentialities. One list includes linguistic, musical, logical-mathematical, spatial, bodily-kinesthetic, intrapersonal (access to one's own feeling life), interpersonal (ability to notice and make distinctions among other individuals, especially their moods, temperaments, motivations, and intentions), and naturalist (sensitivity to flora and fauna) intelligences. (A ninth, spiritual intelligence, only partially qualifies as it does not meet all eight of the specified criteria.) In

this conception, each intelligence provides a unique and equally valuable way of knowing.

Cognitive neuroscience is identifying neural networks in the brain that support each of these intelligences. Evidence from psychology, anthropology, sociology, and other related disciplines supports the notion that humans are endowed with multiple ways of knowing. These human knowledge systems provide a means for sharing, expressing, understanding, knowing, and gaining insights into one's inner and outer worlds.

If one assumes agreement with the foregoing — that music does indeed represent a knowledge system — it then becomes legitimate to ask: What does one know, understand, share, or express through music? Our society recognizes and understands what is to be gained through language and mathematics knowledge systems; the generally accepted notion that a "basic" education consists of reading, writing, and arithmetic is but one example. But what is gained through music? What follows represents only a few of the things we know, discover, understand, experience, share, or express through music:

1. **Feelings.** Central to any discussion of music as a knowledge system must be the idea of feelings. From one end of the continuum dealing with vague, unspecified moods to the other end dealing with crystallized emotions such as grief or joy, music is intrinsically connected with feelings.
2. **Aesthetic experiences.** All human beings have a need for beauty and to activate their innate responsiveness to the organized expressive sounds that we call music.
3. **The ineffable.** Precisely because music is a nonverbal form of expression it is a powerful means to express or to know that which is difficult or impossible to put into words. Two of the most common human experiences that are frequently known through music are love and spiritual awareness.
4. **Thinking.** Musical thought is just as viable as linguistic, mathematical, or visual thought. It can be a potent means of expressing ideas and of knowing truth.
5. **Structure.** Closely allied to the idea of thinking is structure. The human mind seeks patterns, structure, order, and logic. Music provides a unique way of structuring sounds across time, as well as a providing a means of structuring thoughts, feelings, and human experiences.
6. **Time and space.** Time and space are the "stuff" of the universe. All human knowledge systems provide ways of dealing with time and space. As indicated in number 5, music is a means of organizing sounds across time. Although music occurs in "real" time, it deals more with "felt" time, Music, in connection with dance (bodily-kinesthetic knowledge system), is a primary means of experiencing space in time.
7. **Self-knowledge and self-identity.** Music's role in intrinsic, and especially peak (transcendent, life-changing) learning experiences, provides for powerful insights into our private, inner worlds. Many gain their sense of self through a variety of musical activities and experiences.
8. **Group Identity.** Group identity through music is both inclusive and exclusive in that: (a) music helps cement the bonding of those members of a group who share common ideas, beliefs, and behaviors; and (b) music helps isolate and separate one group from another.
9. **Healing and wholeness.** From more specific applications of music in therapy and medicine to more general interactions, music has profound effects on human beings. Music provides a vehicle for the integration of body, mind, and spirit.

All nine of these, and the many others that could be listed, can be subsumed under the idea that music provides insights into the human condition.

Although music represents a built-in knowledge system that allows human beings to know aspects of their inner and outer worlds in a unique mode, such knowledge does not come automatically. All the knowledge systems represent potential learning modalities. More than any other animal species, for whom many specific behaviors are pre-wired, human beings rely heavily on learning for built-in potential to be realized. Human knowledge systems will not simply come to full fruition through a natural growth process; a series of environmental interventions in the form of learning experiences are necessary to activate them. Full development of any knowledge system will only come as innate potential is realized in environmental circumstances. We must learn how to use language, how to think logically and use mathematical symbols, and so on through the list.

Many aspects of a knowledge system can be learned informally, by observation and imitation. However, formal learning experiences, primarily in the form of an education, are the real keys to unlocking and realizing full human potential. Thus, education ought to be concerned with the systematic development of human knowledge systems. An important implication to come out of this discussion is that human beings need to be educated in all the knowledge systems in order to achieve maximum human potential.

One can learn how to speak, to count, to run and jump, to draw, and to sing through informal means. But it takes systematic development to become a novelist, a mathematician, a ballerina, an artist, a composer. In many education systems around the world great emphasis is placed on linguistic and logical-mathematical knowledge systems and very little on the musical, spatial, bodily-kinesthetic, and naturalist knowledge systems. In terms of formal education as schooling, adoption of the notion of a variety of equally valuable knowledge systems carries with it the implication that the curriculum will reflect these knowledge systems. All students should have an opportunity to experience and develop their capabilities in all knowledge systems. Clearly this is counter to the prevailing back-to-basics emphasis on language and mathematics skills, but it is far more consistent with the current understanding of the human mind from a behavioral sciences perspective. To adopt this viewpoint would place music in the core of the school curriculum.