Wolfgang Amadeus Mozart

Wolfgang Amadeus Mozart was an Austrian composer who is well known throughout the world for his awe-inspiring pieces. He characterizes the pinnacle of the late 18th century Viennese Classical style. Composing at the developing years of five, he is honored as one of the greatest musical geniuses in the history of musicians (Compton’s.) His works of chamber music, symphonies, and piano concerts display his notable value of his numerous triumphs in opera. Mozart is the one of the world’s four leading operatic composers. Accomplishing the harpsichord and violin, he later started the pianoforte. When he was a child, many foresaw his natural talent for music. He was intelligent, being obsessed with mathematics. On February 16, 1778, his father, Leopold, gave a letter to Wolfgang saying, “As a child and a boy you were serious rather than childish and when you sat at the clavier or were otherwise intent on music, no one dared to have the slightest jest with you. Why, even your expression was so solemn that observing the early efflorescence of your talent and your ever grace and thoughtful little face, many discerning people of different countries sadly doubted whether your life would be a long one” (Britannica.) The utter splendor, excellence, complexity of his music still amazes and enchants listeners today.

Johann Sebastian Bach

Born in March 8, 1714, Bach changed the future of Baroque music. He was the most important composer of the pre-Classical period. Bach was the leader of the movement from Baroque music to mercurial romanticism. His work opened up future musical styles, such as symphonies, concerti, and keyboard sonatas in the evolution of classical sonata-allegro tone. Noticed as being a gifted musician, in 1740, he was appointed harpsichordist (also known as a flutist.) Because he was not only a composer and a performer, but also a teacher, he had a sought-after reputation. Bach composed and played religious music, symphonies, concerti, organ sonatas, chamber music, and songs with the flute harpsichord, piano, organ, and oboe. Mozart was even influenced by his new style that he introduced to the whole world, for Mozart was quoted saying, "He is the father, we are the children." Bach's pieces were emulated with his intensity and at the same time with his gentleness (Britannica.)

Relating Mozart and Bach with spatial performance

Even before Mozart entered this world, he listened to violin and piano music played by his father, Leopold, who was also a notable composer and musician. At the age of four, Mozart had already composed and played pieces he created in front of an audience in the royal court. Mozart wrote more than 600 compositions including operas, symphonies, and concertos by the time of his death (Britannica.) Many researchers today believe that his music enters the brain in faint but compelling methods (Clark.)

After exploring the development of the brain, researchers found that children are conceived with 100 billion unconnected or loosely connected neurons, nerve cells, in their brains. In order to revive them into use, a child needs to be surrounded with the love of a parent, to be nurtured. However these pathways will disintegrate if not exercised. It is believed through some studies that music learning can strengthen those nerve cells. Music "enriches as an art, a source of pleasure, and a tutor of discipline" (Viadero). Assistant professor of cognitive development at the University of Wisconsin-Oshkosh, Mrs. Raucher, says that music is stabilizing the neural connections necessary for spatial-temporal ability, which is the ability to make out the visual world, by correctly forming and transforming "mental images of physical objects, and recognize variations of objects" (Raucher.) Spatial performance is essential for advanced intelligence. Music, complex math such as Calculus, and chess require these higher brain functions.

One study in University of California Irvine, on the month of February, in the Neurological Research journal showed that after exposing children to Mozart's music for simply ten minutes, greatly improved their skills to understand proportion, geometry, mathematical, and scientific concepts. There were two groups of children. The control group was normal children, while the other comparing group had to take piano lessons for (Shaw and Raucher.) Tests that measure the spatial abilities for young children were given through puzzles. It not only helped cultivate their mental imagery, but also helped develop their concept of serial ordering. Skills such as these are greatly used for occupations in engineering and architect. However, because those skills only stayed with the children for about an hour, the name of this effect came to be the "priming effect" (Coff.)

Another experiment demonstrated that being subjected to complex music enhances spatial abilities using a maze as the test. Rats were used as subjects because they have exceptional hearing and excellent spatial ability. Also, their brains are rather similar to the brains of humans. Half of the rats listened to classical music for twelve hours everyday, while the other half of rats listened to silence, being the control group. The "classical herd" finished the maze at an earlier record than the "control rats" (Raucher.) Through different test, researchers believe that a person can use classical music to promote learning, expand memory, and build up listening skills, because "it changes metabolism, affects muscular energy, raises and lowers blood pressure, influences digestion, and has a powerful impact on our emotions and behavior" (Raucher.) In 1993, a research proved that Mozart piano sonata increased the IQ's of college students at the University of California Irvine. If students increased their scores up to nine IQ points. Co-author Gordon Shaw, a physicist at the University of California Irvine. It is theorized that music that is intricate, complicatedly constructed, and not repetitive primes higher brain functions, especially Mozart's Sonata for Two Pianos in D Major (Shaw.)

A study was conducted at three preschools in Orange and Los Angeles counties at the University of Wisconsin's psychology department. Seventy-eight three- and four-year olds participated as subjects. Thirty-four children received private piano keyboard lessons, twenty children received similar private instruction on computers, ten children were given group-singing lessons, and fourteen children in a control group received no special lessons. The conclusion was that the piano keyboard-playing children proved to have a significant improvement in their use of abstract reasoning skills through tests taken. (Shaw)

The fundamental structure of music is a key element of brain organization. The arrangement of classical music is thought to assist "cognitive processing" in the brain (Coff.) In the human brain, the arrangement and representation of skills, that are necessary to create music, are still not comprehended. Classical music includes music written by Mozart, Beethoven, Bach, and other celebrated composers because their music has sufficient complexity and is not recurring. The absence of these things would interfere with abstract reasoning.

Purpose

Even though the idea that classical music makes a positive difference in test scores is incredibly popular, I heard of it for the first time a week before I started my project. This concept amazed me. Doing more and more research in magazine articles as well as on the Internet, made me wish that I hadn't quit and practiced harder in my piano lessons. Discovering the long-term effects and benefits of playing classical music on an instrument as well as listening to classical music, assured me that this theory works. However, it also created doubts because if this were a known and true fact, then knowing society, people would rush at the chance to enhance their child's intelligence. I jumped at the opportunity to prove such an intriguing concept. There were so many questions that arose with this theory, such as what kinds of musical exposure would yield positive results, what kinds would yield negative results, and what kinds do not yield results at all. What kinds of people benefit the most with this sort of activity? Evaluating the outcomes to this experiment, proved to be positive ones. Music aids children in numbers because of its relation with math. Music is made up of basic patterns that use numbers. Keeping the beats of a song or knowing how long a note of a song should be, is like counting. As they increase in age, fractions will be understood without much difficulty. Music can also assist with learning how to read and write. When a child needs to learn unfamiliar vocabulary, with rhythm or a melody, these difficult words can be learned at a faster rate. As a result, the public may see that intensifying of their public school's music programs will create long-term intelligence benefits. There will be no harm if the experiment's conclusion will promote parents to either provide their children with music lessons or support their schools in improving their music curriculum.